

The logo for Kontakt 3, featuring a stylized 'K' inside a circle followed by the text 'KONTAKT 3' in a bold, sans-serif font. The background is a grid of dark, reflective cubes with bright, glowing light patterns in the center.

KONTAKT 3

OPERATION MANUAL



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Special thanks to the Beta Test Team, who were invaluable not just in tracking down bugs, but in making this a better product.

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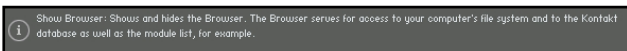
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1 User Interface Elements

During your work with KONTAKT, you will discover that most elements that let you interact with the program are being used consistently throughout the whole interface. The handling of these common elements is always the same, only the context in which they appear will vary. In this chapter, we'll explain the basic types of elements that you will encounter, and what you can do with them. Before we begin, though, there's a helpful function you should know about before all others, since it will reliably serve as a reference whenever you're not sure what a specific knob, menu or other interface element does: the INFO PANE.

1.1 Info Pane

The INFO PANE is an area located at the bottom of your KONTAKT window, just above the bottom-most status bar. If you don't see it, click on the “i” icon at the top of the window – this is how the INFO PANE can be shown and hidden.



The Info Pane, showing a description of the Browser button in the Main Control Panel.

On its right side, just below the large window section labeled **MULTI RACK**, the **INFO PANE** will display a short help text about whatever control your mouse is currently pointing at. If you don't know what a knob, a button, a menu entry, or in fact any other user interface element does, just hover your mouse over it while the **INFO PANE** is visible; this will give you a hint.

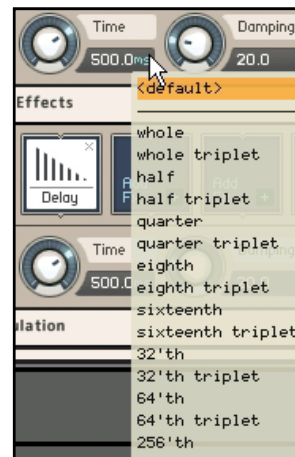
1.2 Knobs

Knobs are the most frequently used interface element for adjusting numeric parameters. They're designed to resemble real rotary controls that you can find on mixing consoles and other equipment.

- ▶ To change a knob value, click on it and drag your mouse upwards to move the knob clockwise, or downwards to move it counter-clockwise.
- ▶ Some knobs can be adjusted more finely if you hold down the Shift key on your keyboard while moving the knob.
- ▶ You can reset a knob to its default value by double-clicking on it.
- ▶ Many time-related parameters throughout the KONTAKT environment can be synchronized to your song tempo. Clicking on the unit that's being displayed in the respective control's numeric readout will open a drop-down menu, which contains a number of note values; selecting one of these, then dialing in the number of notes that you'd like to be spanned by one cycle, will synchronize the parameter to the current tempo. If you want to switch the parameter back to unsynchronized operation, just open the menu again and select its *Default* entry.



Bipolar knobs like this one have their zero (and default) setting at the top of their scale.

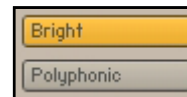


The tempo synchronization drop-down menu allows you to choose a note value instead of an absolute time value for the respective control.

- To create a new modulation assignment, which uses a modulation signal source to change a parameter over time, right-click on the respective knob and choose a modulation source from the drop-down menu that appears. How KONTAKT's modulation system and the assignment of modulation sources work will be explained in detail in chapter 22 of this manual.

1.3 Buttons

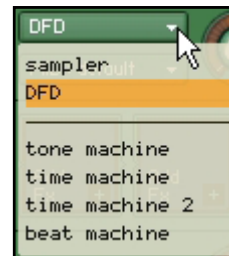
Buttons appear wherever a parameter can be switched on and off. Each click on a button toggles it between those two states. The current state of a button is being indicated by its background color; if a parameter is enabled, its button will be highlighted.



Active toggle buttons are highlighted.

1.4 Drop-Down Menus

These menus allow you to choose from a list of values. They look similar to buttons, but with a small down arrow icon on their right side. Click on them to open the menu; it will stay open until you have either selected a new value or clicked somewhere else in the KONTAKT window, which leaves the previous value unchanged. Some menus have further sub-menus; these will be indicated with a small right arrow next to their name. Moving the selection bar to one of these items will open the respective sub-menu.



The mode drop-down menu of the Source Module.

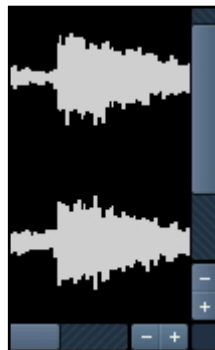
1.5 Scroll Bars

Scroll bars appear at the bottom or right border of panes whose contents take up too much space to be displayed in their entirety. Clicking on the position indicator bar and dragging it will scroll the viewport across the content, while clicking on the empty space of a scrollbar will jump to the respective position. Some contents can also be zoomed in and out; this is indicated by “+” and “-” buttons at one end of their scrollbar. Click on “+” to zoom in, “-” to zoom out. Some places in KONTAKT, namely the MAPPING EDITOR and the WAVE EDITOR, provide an alternative way of zooming that you might find more convenient; you can read all about this method, dubbed “rubber-band zooming”, in the chapters of the respective editors.

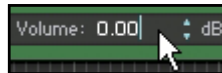
1.6 Value Fields

Some fields contain editable – usually numeric – values without an additional control. These frequently appear in places that don’t provide enough space for knobs or other controls, such as rows of tables that can shrink or grow. There are various ways to edit their value:

- ▶ Click on the field, then drag your mouse upwards to increase the value, or downwards to decrease the value.
- ▶ When you hover your mouse pointer over the field, small up and down arrows will appear on its right side. Click on these to increase or decrease the value one step at a time.
- ▶ Double-click on the field and enter a new value with the keyboard.



Horizontal and vertical scroll bars in the Wave Editor.



A value field which has just been double-clicked on; this is indicated by the text cursor, which allows the user to enter a value using the keyboard.

1.7 Saving and Loading Presets

Whenever you have created a setting that you're really happy with in any part of KONTAKT, you might want to save it for later use in another context. The KONTAKT environment is split up into modules, and most of these offer a preset drop-down menu that allows you to manage presets for the respective module. Loading a preset in a module won't affect the other modules in your Instrument – this modular approach lets you freely combine different presets into your own Instruments.

Presets are saved in files (file extension: .nkp) which reside in a series of sub-folders within a “presets” folder. KONTAKT creates two of these preset folders on your system: one contains the factory presets, and is located in a directory which is not writable by normal users; the other one resides within your home directory and will be used to store your own presets. KONTAKT will create this user presets folder when you first start it up. On a Windows PC, the factory and user preset folders will be created in

```
C:\Program Files\Common Files\Native Instruments\Kontakt 3\presets  
C:\Documents and Settings\[username]\My Documents\Native Instruments\  
Kontakt 3\presets
```

On a Mac, you can find the factory and user preset folders in

```
Macintosh HD/Library/Application Support/Native Instruments/Kontakt  
3/presets  
Macintosh HD/Users/[username]/Documents/Native Instruments/Kontakt  
3/presets
```


KONTAKT comes with a large number of ready-made presets for most of its modules. These are good starting points for your own settings, so it's worth browsing the *Factory* preset list of a module when you have a specific task in mind and don't know where to begin yet.

As mentioned, preset management in KONTAKT takes place within each module's preset drop-down menu. You can access this menu by clicking on the button labeled *PRE* or *PRESET* that's located on the left side of each module. It contains all preset files that were found in the respective preset folders on your hard disk, with further subdirectories (if any) appearing as sub-menus. The *Save Preset* entry at the bottom of the menu will open a dialog, which asks you for a filename. Enter a descriptive name and click on *SAVE* – from now on, your settings will be available within the *User* submenu of the presets drop-down menu. This won't work, however, if you change the path in the save dialog, so it's recommended that you always save your presets to the default path.

2 KONTAKT: The Big Picture

KONTAKT is an extremely powerful, complex, and capable instrument. Before getting into specifics, let's take a step back first and describe KONTAKT in general terms.

The structure of most samplers, hardware or software, is similar to that of a synthesizer: at its source, some kind of sound generator outputs unprocessed signals in response to incoming MIDI notes; these signals are then being processed in a variety of ways and sent to the output. The difference is that the sound generator of a typical synthesizer creates its source waveforms entirely by electrical or mathematical means, often being limited to a range of well-defined waveforms, whereas a sampler can use any kind of previously recorded audio data – sampled acoustic instruments, sound effects, vocals, and (of course) any classic waveform known from synthesizers as well.

KONTAKT's overall structure is not any different in this regard, albeit it is far more sophisticated than a lot of conventional samplers. For instance, KONTAKT does not force any particular signal flow structure upon your Instruments – it has an entirely modular approach to sound processing and parameter modulation. Anything is possible, from triggering simple one-shot samples to building sophisticated virtual instruments that faithfully reproduce all aspects of their acoustic counterparts and respond intelligently to your performance.

As usual, this power comes at a price, though; while you'll be able to load and play your first KONTAKT Instruments right away, it will take some more practice to become a master at creating your own Instruments. We hope this manual will help you achieve this; also, whenever you're stuck, remember you can get helpful hints from the INFO PANE described in section 1.1 at any time.

2.1 Building Blocks

The full functional range of KONTAKT's sampling environment is split up into smaller sections, which allows you to concentrate on the task currently at hand without getting distracted by other details. This functional division is also reflected on the user interface; most elements that belong to a specific kind of task are kept within a separate pane, tab, or dialog window.

In this section, we'll further distinguish two general types of building blocks: the core blocks, which are hierarchically organized and make up KONTAKT's chain of turning MIDI data into sound, and the tools, which allow you to perform a wide range of peripheral management, configuration, and monitoring tasks.

2.1.1 Core Building Blocks

Let's follow KONTAKT's path of turning simple audio files into readily playable instrumental setups, starting from the smallest element and then working our way upwards:

- ▶ A Sample is a simple audio file on your hard disk. Samples may occasionally carry additional meta-data, but in their purest form, they don't provide anything else than a recorded audio signal. An example of a Sample would be the digital recording of a single piano note. Samples can appear in various formats, such as WAV, AIFF, or REX.
- ▶ A Zone is KONTAKT's way to put a Sample into a playable context. Think of a Zone as a wrapper around a Sample (and only one); in addition to the Sample itself, the Zone contains information about which MIDI data will make KONTAKT trigger this Sample, at what pitch the sample was recorded, and a few other details. An example of a Zone would be the aforementioned piano Sample, with the attached information that it should be played without any transposition whenever KONTAKT receives an F3 note with a velocity value between 64 and 95. As Zones don't contain much additional data, they only exist within a larger context and can't be saved and loaded separately.
- ▶ A Group is a container that allows you to combine a number of Zones. As every Zone belongs to a Group (and only one), each Instrument will contain at least one Group; usually, you'll add several more Groups in order to combine your Zones by means of distinctive aspects – which aspects you choose is entirely up to you, but there are some common approaches. All Zones that belong to a specific Group will share a number of common parameters and signal flow modules; for instance, their Samples will be played by the same sound `SOURCE MODULE`. Consequently, if you want some of your Zones played by a `SOURCE MODULE` with different settings, you'll need to separate them into their own Group first. In the course of this manual, modules that pertain to

a Group are being referred to as “Group-level modules”. A typical example of a Group would be “all Zones in my Instrument that should be played at mezzoforte level”. Groups can be saved and loaded separately as files with an .nkg extension.

- An Instrument is the entity you’ll encounter most frequently when you’re working with ready-made KONTAKT libraries. As its name suggests, it’s the virtual equivalent of an acoustic instrument – when being played, it produces a specific range of sounds, possibly at different timbres, dynamics, and articulations. Technically, a KONTAKT Instrument is a wrapper for a number of Groups, whose output signals will be mixed and pass a common signal chain; the modules in this chain are said to reside on the “Instrument level”. A typical example of an Instrument would be “a piano”. Instruments can be saved and loaded separately; native KONTAKT Instrument files have an .nki extension.
- An Instrument Bank is the only optional element of KONTAKT’s core hierarchy; in other words, you don’t have to use this feature if you don’t want to. Instrument Banks allow you to combine up to 128 Instruments into a container that responds to a single MIDI input channel; you can then switch the active Instrument by sending MIDI program change messages on this channel. This allows you to create General MIDI-compatible sound sets, or combine Instruments that contain various articulations of the same acoustic instrument into one slot. A typical example of an Instrument Bank would be a number of violin Instruments that contain legato, détaché, staccato, and pizzicato Samples, respectively, with the different articulations and playing techniques being

switchable via program change messages. Instrument Banks can be saved and loaded separately as files with an .nkb extension.

- Finally, a Multi lets you freely combine up to 64 Instruments into a production setup. The Multi is the topmost element of KONTAKT's core hierarchy. Each Instrument in a Multi responds to a specific MIDI channel and will send its output signal to a specific Output Channel, where the signals from all Instruments will be mixed and passed on to a physical output of your audio interface or, alternatively, to your host program. A typical example of a Multi would be “a jazz trio ensemble”. Multis can be loaded and saved as files with an .nkm extension.

2.1.2 Tools

In addition to its core architecture, KONTAKT offers some tools that will simplify your everyday work:

- The **BROWSER** is located at the left side of your KONTAKT window and can optionally be hidden to save screen space; it provides a convenient way to organize and access all KONTAKT-relevant files on your system, such as Instruments, Multis, or Banks. The **BROWSER** pane also offers a number of additional utility functions; these will be described in detail in chapter 11.
- The **DATABASE** keeps track of all files on your system that can be used by KONTAKT; it allows you to browse and access these files without the heaviness of a full-featured file system browser and lets you quickly search through large amounts of data. It's explained in detail within section 11.3.

- ▶ The **RACK** occupies the largest amount of space in your **KONTAKT** window; it operates in one of two different modes. In **Multi Instrument** mode, the **RACK** will provide an overview of all Instruments that are currently in your **Multi**, along with some general parameters. Clicking on the wrench icon on the left side of an **Instrument Header** will switch the **RACK** into **Instrument Edit** mode, which provides a flexible and adjustable view of the contained module panels, editors, and modulation tables of this Instrument.
- ▶ The **OUTPUT SECTION** is a mixer-style environment in which you can adjust output levels, assign **Output Channels** to physical outputs, and use signal processing modules that operate on the output signals of all Instruments in your **Multi**.
- ▶ The virtual on-screen **KEYBOARD**, the **MASTERKONTROL** section, the **INFO PANE** and the **OPTIONS DIALOG** provide various utility functions and are being explained in detail within their respective sections of this manual.

3 The KONTAKT Window

Let's have a look at KONTAKT's main window during a typical session:



KONTAKT in action.

The user of this session has currently set up a number of Instruments in a way that allows him to play them via different MIDI channels. Let's have a look at the visible main elements of the user interface:

1. At the top of the window, the **MAIN CONTROL PANEL** provides buttons that toggle the display of various optional interface parts, such as the **BROWSER**; it also includes some drop-down menus that contain global functions and options, as well as some status meters.
2. The **BROWSER** on the left side of the window provides functions for managing your collection of KONTAKT-relevant files. In the screenshot, it's currently switched to the *Files* tab, which contains a file system navigator.
3. The **RACK**, which takes up the largest part of the window, is currently in Multi Instrument mode; below its own header, it displays a number of **INSTRUMENT HEADERS**; these represent all Instruments in the current Multi.
4. An **INSTRUMENT HEADER** at its normal view size. It contains the Instrument's name and various parameters, such as its MIDI input channel, output level, panning position, and tuning.
5. An **INSTRUMENT HEADER** that has been minimized in order to save screen space.
6. The **OUTPUT SECTION**, which displays a channel strip for each configured Output Channel, plus four Aux Channels.
7. The **INFO PANE**, which displays some details of the currently selected Instrument file below the **BROWSER**, and a brief explanation of the control at the mouse position below the **RACK**.

8. The STATUS BAR, where messages from running Scripts and, at startup, the Database loading progress will appear.

Each of these sections is explained in detail within its own section of this manual.

3.1 Standalone Menu

In addition to the contents of the main window, the standalone version of KONTAKT provides two system drop-down menus labeled SETUP and HELP. These are located at the top of the desktop on Macs, or at the top of the KONTAKT window on Windows PCs. The SETUP menu contains an entry which will open the Audio/MIDI setup dialog, which is explained within the setup guide. The HELP menu lets you launch Native Instruments' SERVICE CENTER application, access the additional PDF documents that are part of the KONTAKT installation and explain special topics, watch the KONTAKT video tutorials, and point your web browser to the KONTAKT website.

4 The Main Control Panel

The **MAIN CONTROL PANEL** is the topmost row of elements in your **KONTAKT** window. Here you can enable and disable the main parts of the user interface, access various global menus, open the **OPTIONS DIALOG**, and view statistics about **KONTAKT**'s overall resource usage.

4.1 User Interface Switches

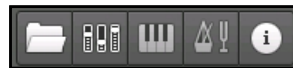
The first five buttons of the **MAIN CONTROL PANEL** allow you to choose which key elements of the **KONTAKT** interface should be displayed. These are toggle buttons, which means that repeated clicks will alternately show and hide the respective elements.

From left to right, here's what the buttons do:

BROWSER: Click this button to show or hide the **BROWSER** at the left side of the **KONTAKT** window. This is the only optional element that will shrink your actual window size when hidden. You can read all about the **BROWSER** in chapter 11 of this manual.

OUTPUTS: This button will show or hide **KONTAKT**'s **OUTPUT SECTION**, which is explained in detail within chapter 12.

KEYBOARD: Shows or hides the virtual **ON-SCREEN KEYBOARD**, which allows you to generate note and controller events, and indicates where Zones



Each button shows and hides a main interface element within **KONTAKT**'s main window.

and keyswitches of your currently selected Instrument are placed. The ON-SCREEN KEYBOARD is explained in chapter 9.

MASTERKONTROL: This button will show or hide a panel with a number of global parameters and common utility functions. This feature is explained in chapter 10.

INFO PANE: This button toggles a pane at the bottom of the window that displays information about the currently selected file (if the BROWSER is active) and the user interface element at which your mouse is currently pointing.

4.2 File Menu

The button that opens this drop-down menu is indicated with a disk icon. The FILE MENU contains the following functions:

New Instrument: Adds a new Instrument to your Multi.

New Instrument Bank: Adds an empty Instrument Bank to your Multi. Instrument Banks are described in detail in chapter 8.

Load: Opens a file selector dialog, asking you to locate and load any object that KONTAKT can handle, whether it's an Instrument (file extension: .nki), a Multi (.nkm), or an Instrument Bank (.nkb).

Load Recent: This sub-menu contains an up-to-date list of files that you recently opened in KONTAKT. Selecting one will load it.

New Instrument From List: This sub-menu allows you to select and load an Instrument from the Instrument QUICK-LOAD list. You can access the same list by clicking the down arrow icon next to the Instrument name in



Whenever you create a new Instrument, KONTAKT will use a default Instrument file as a template, which is usually empty. Overwriting this file with your own version allows you to define your own default settings. For instance, you might want new Instruments to contain a Send Levels module in their Instrument Insert Effects chain from the get-go; just create a new Instrument, insert the module into its chain, and choose the “Save as Default Instrument” command from the Save menu. Similarly to this, KONTAKT uses a default Multi file as a template for new Multis.

an INSTRUMENT HEADER. To learn how the QUICK-LOAD feature works, please refer to section 11.3.4 of this manual.

New Instrument Bank From List: This sub-menu provides access to the contents of your Bank QUICK-LOAD list. You can access the same list by clicking on the down arrow icon at the right side of a BANK HEADER. Selecting a Bank will load it.

Save: This function allows you to save any Instrument in your Multi to an .nki file for later re-use. When you move the mouse to this entry, a sub-menu will open, which contains a list of all Instruments in your current Multi. Selecting one of them will open a Save dialog that lets you choose a location and change the name of the Instrument. Note that the file name – without the .nki extension – will be used as the Instrument name that's being displayed in the INSTRUMENT HEADER.

Below the file selector, the dialog lets you choose how KONTAKT should handle the Samples that are being referenced by the Instrument. When you have added these Samples to your Instrument during your current session, they're still in their original location, and the Zones in your Instrument reference them via their full paths; the various options in the save dialog allow you to fine-tune this behavior before your Instrument is written to disk:

- ▶ **PATCH ONLY** will keep the Samples in their original locations and leave the file references in their current state. This creates very small files, as only the Instrument parameters will be saved. Be aware, though, that this method can keep the relation between the Instrument and its Samples in a rather fragile state; as soon as you move the Samples to a different location or delete them, KONTAKT won't be able to find them the next time you attempt to load the respective Instrument. In such cases, a **SAMPLES MISSING** dialog will appear, asking you in which places KONTAKT should search for the Samples. The **SAMPLES MISSING** dialog and its options are explained in section 7.1.
- ▶ If you enable the **ABSOLUTE SAMPLE PATHS** checkbox below the **PATCH ONLY** option, the Sample files will be referenced by the Instrument with their absolute paths; this has the benefit that KONTAKT will still be able to find them when you move the Instrument file to a different location. However, if you know that the Samples already reside in a folder that will always be moved and backed up along with the destination folder of your Instrument, you can keep the saved file reference relative to the Instrument location by disabling the **ABSOLUTE SAMPLE PATHS** option.
- ▶ **PATCH + SAMPLES** will save the .nki file and copy the contained Samples to a new location, changing the file references within the Instrument to the copies in the process. If you leave the **SAMPLE SUB-FOLDER** option below set to its *Use Default* value, KONTAKT will save the Sample files to a "Samples" folder inside the destination location of your Instrument file; this folder will be created if it doesn't exist yet. This way, the Samples will be kept close to the Instrument, which helps you keeping



While an Instrument is currently loaded in KONTAKT, never move its referenced Samples to a different location manually. There's no guarantee that KONTAKT keeps all referenced Samples entirely in memory, so trying to save the Instrument with Samples afterwards can result in corrupted Sample data in such a scenario.

track of them when doing backups or moving directories. You can also specify a different Sample location, though; for example, you might want to use a common “Samples” folder that resides in the directory of your project.

- **MONOLITH** will combine the Instrument and its referenced Samples into one, large file. This is the safest option to choose in terms of keeping Sample references intact, as the Samples cannot accidentally get separated from the Instrument later. This is also a good way to create Instruments that should be distributed to other users of KONTAKT.

It's important to keep track of the ways the Sample and Instrument files on your hard disk relate to each other; this protects you from unpleasant surprises when you move files around, delete them, or recover KONTAKT data from a backup.

Save as Default Instrument: This command saves the selected Instrument as your default one. Whenever you create a new Instrument, either via the *New Instrument* command of the **FILE MENU**, or by dragging Samples from the **BROWSER** into the **RACK**, KONTAKT will use this Instrument as a template.

Save Multi: This saves your current multi to an .nkm file on your hard disk. While the resulting Multi file will contain all Instrument data, KONTAKT will still need to take care of the Samples that are referenced by the Instruments. Thus, the save dialog offers the same Sample management options as described in the *Save* paragraph above.

Save as Default Multi: This command will save your current Multi as a default template that KONTAKT will load at startup or when you choose the *Reset Multi* command.



When you are using KONTAKT as a plug-in inside your host program and save your session, all Multi and Instrument data will be included in this session file. Sample references will be saved in an absolute fashion, so you might get a “Samples Missing” dialog when you open the session again after you have moved your Samples. If the Samples reside below KONTAKT's library path (which you can specify manually on the Load / Import tab of the Options Dialog), though, the references will be saved relatively to this folder; this makes it possible to share session files with KONTAKT instances across platforms. Hence, it's a good idea to always keep your KONTAKT libraries somewhere below the folder that you've specified as your library folder.

Reset Multi: This will restore the default Multi that's loaded at start-up, removing all Instruments from your current Multi in the process.

Batch Re-save: As explained in the paragraph about the *Save* function, KONTAKT Instruments that include references to external Sample files can cause problems if either the Instrument or the Sample files are being moved to a different location. In such cases, you will be presented with a SAMPLES MISSING dialog that asks you in which places KONTAKT should look for the missing files (see section 7.1). While it's not a big problem to let KONTAKT locate the Samples of one or two Instruments via this dialog, and then re-save them afterwards in order to make the changes permanent, the described effect will be worsened by an order of magnitude if it occurs with a whole library. This can happen if you move the library folder or its contained sub-folders around, and makes it very tiresome to access the library, as every attempt of loading an Instrument will be answered with a SAMPLES MISSING dialog.

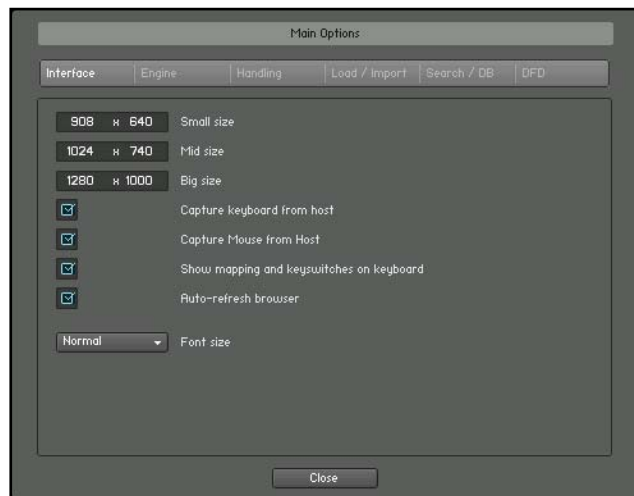
To fix the problem manually, you would have to load each Instrument, locate the missing Sample files via the SAMPLES MISSING dialog, and re-save the Instrument to its original location within the library folder. Clearly, this is unfeasible. The *Batch Re-save* function automates this process; when you select it, a selection dialog will appear, asking you to choose a folder. After clicking CHOOSE, all Instrument, Multi, and Bank files in this folder and its sub-folders will automatically be scanned for unresolved Sample references; if any are found, the SAMPLES MISSING dialog will appear once, allowing you to specify which places should be searched to resolve the references. Once KONTAKT has successfully located the Samples, the affected Instrument, Multi or Bank files will be re-saved with corrected references, so afterwards, you'll have a consistent library again.



As the Batch Re-save process will overwrite the Instrument, Multi, and Bank files within your selected folder, it's recommended to make a backup of this folder before you execute the command.

4.3 Options Dialog

Clicking on the gear icon in the MAIN CONTROL PANEL will open the OPTIONS DIALOG window. This is where you can configure KONTAKT's global program preferences, such as interface behavior, audio engine parameters, and import options. Preferences are divided into six categories, which you can access with the tabs at the top of the OPTIONS DIALOG window.



Interface tab of the Options Dialog.

4.3.1 Interface Tab

This page contains options that change the look and behavior of KONTAKT's user interface.

SMALL SIZE, MID SIZE, BIG SIZE: KONTAKT lets you switch between 3 different, pre-defined window sizes during work. You can switch between these via the “magnifier” drop-down menu in the MAIN CONTROL PANEL. These options allow you to adjust the actual window size for each preset.

CAPTURE KEYBOARD FROM HOST: When enabled, KONTAKT will try to intercept keystrokes when running as a plug-in, so that these are being interpreted by KONTAKT instead of the host. This allows you to control the KONTAKT plug-in with the same keyboard shortcuts as the standalone version. Note that this feature doesn't work equally well on all types of host programs; some host implementations don't allow keystrokes to be captured at all.

CAPTURE MOUSE FROM HOST: This option is similar to the previous one, but tries to intercept events from your mouse wheel, so that you can use it for navigation within the KONTAKT plug-in.

SHOW MAPPING AND KEYSWITCHES ON KEYBOARD: If enabled, KONTAKT's virtual ON-SCREEN KEYBOARD will highlight keys that trigger Zones or keyswitches in your currently selected Instrument with different colors.

AUTO-REFRESH BROWSER: When enabled, the BROWSER will periodically check your file system for changes and pick them up by itself, without requiring you to refresh it manually.

FONT SIZE: This drop-down list allows you to choose between two interface font sizes; the large font increases legibility, but takes up more screen space.

4.3.2 Audio Engine Tab

DEFAULT VOLUME FOR NEW INSTRUMENTS AND VOLUME RESET: This value will be used as a default output volume for new and imported Instruments. Also, it's the value to which the output volume slider will snap when you double-click on it.

CPU OVERLOAD PROTECTION: High voice counts can make the audio engine overload your CPU during operation; in such cases, the engine can choke and be rendered unusable until you restart it manually via the **RESTART ENGINE** button on the *Engine* tab of the **BROWSER**. This scenario can be avoided with the overload protection mechanism, which allows KONTAKT to kill voices when the CPU load gets critical. The *Relaxed*, *Medium*, and *Strict* settings affect how “paranoid” KONTAKT will be about this. *Relaxed* will not start killing voices until the CPU is very close to overloading, and thus will give you the highest voice count while still providing some protection against overloading; if the CPU load is still too high, try one of the stricter settings. *Disabled* will turn off the protection mechanism.

MULTIPROCESSOR SUPPORT: If enabled, KONTAKT will try to make use of multiple CPUs or dual-core processors, if present. Note that by their very nature, low-latency applications are not very well-suited for running on multiple processor cores; therefore, low system latency values will eradicate the advantages of multi-core processing.

SEND MIDI TO OUTSIDE WORLD: This drop-down menu allows you to choose which classes of MIDI events will be sent to KONTAKT's MIDI output ports. All menu entries will be toggled between on (indicated with a small diamond next to the entry) and off state when you click on them. The available event classes are:

- ▶ *GUI Keyboard*: MIDI events that are generated when you click on KONTAKT's virtual ON-SCREEN KEYBOARD.
- ▶ *Script Generated CCs*: MIDI controller events that originate from running Scripts.
- ▶ *Script Generated Notes*: Note-on and note-off events that originate from running Scripts.
- ▶ *Incoming CCs*: This will create a loop-back that will mirror incoming MIDI controller events at the MIDI output.
- ▶ *Incoming Notes*: A loop-back that will mirror incoming MIDI note events at the MIDI output.

OFFLINE INTERPOLATION QUALITY: This option allows you to specify an HQI (interpolation) quality setting to be used during offline bouncing and freezing that's different from the one specified in the SOURCE MODULES of your Instruments. For instance, you might want to keep your SOURCE MODULES set to *Standard* in order to save CPU resources during arrangement, but switch to *Perfect* for bounces to get the best possible quality during mixdown. The default setting is *Like Realtime*, which will use each SOURCE MODULE's HQI setting during offline operation.

OPEN AUDIO AND MIDI SETTINGS: This button will open the Audio / MIDI setup dialog, which is explained in the setup guide.



Read all about the various HQI settings in section 17.1.1.

4.3.3 Handling Tab

USE COMPUTER KEYBOARD FOR MIDI PLAYBACK: When enabled, you can use your computer keyboard to trigger MIDI notes for the currently selected Instrument. The QWERTZ/QWERTY row of letters will play the middle octave.

KEYBOARD VELOCITY: Adjusts the velocity of notes that were triggered via your computer keyboard.

SOLO MODE: This setting determines what KONTAKT will do when you attempt to activate the SOLO button on more than one Instrument. *In Place* will only allow one solo Instrument at any time, so any other one will be muted; *Latch* will let you switch more than one Instrument into solo mode.

BROWSER: DOUBLE-CLICK LOADS INSTRUMENT: If enabled, you can add Instruments from the BROWSER into the RACK by double-clicking on their names.

BROWSER: SHOW FILES BEFORE FOLDERS: This determines the order in which files and folders will be listed in the lower pane of the BROWSER.

DEFAULT ROOT KEY FOR NEW ZONES: When you create Zones out of Samples that don't have any embedded information about the note they were sampled at, the Zones will be generated with the root key specified here.

MIDI CHANNEL ASSIGNMENT FOR LOADED PATCHES: This drop-down menu lets you switch between two different modes that affect in which way KONTAKT will assign MIDI channels to newly added Instruments: *Assign 1st Free* is the default behavior and will assign the smallest possible MIDI port that hasn't been used yet (if available), *Assign to Omni* was the standard behavior of KONTAKT 1 and will always assign loaded Instruments to *Omni* (thus making them respond to all input ports). The additional *Keep Channels*

from K1.x Patches toggle option lets you specify whether KONTAKT should use the MIDI channel embedded in KONTAKT 1 patches (later versions didn't save MIDI assignments in Instrument files anymore, only in Multi files).

EXTERNAL WAVE EDITOR: This setting lets you specify your own preferred sample editor. When you click on the **EXT. EDITOR** button in the **WAVE EDITOR**, KONTAKT will start the specified editor with the current sample, and automatically pick up the changes when you save the Sample within that editor.

4.3.4 Load / Import Tab

LOAD INSTRUMENTS / BANKS / MULTIS IN "PURGED MODE": When enabled, KONTAKT will never load any Samples implicitly; instead, it will use purge markers, which allow you to add the actually required Samples afterwards. The purge mechanism is explained in detail within section 4.4.

ALWAYS RE-WRITE SAMPLES AS WAV: If enabled, KONTAKT will always save Samples used by Instruments that came in third-party formats, such as REX, in WAV format; otherwise, they will be saved in their native formats.

UNWIND AUTOMATION IDs FOR ADDITIONAL LOADED PATCHES: When enabled, KONTAKT will re-assign automation IDs of newly loaded Instruments if there's already an Instrument in your Multi that uses the same IDs. As an example, suppose you'd like to add an Instrument twice to your Multi, which uses automation IDs 0 through 9; if this option is enabled, KONTAKT will change the assigned IDs of the second Instrument to 10-19 on load, provided that these IDs have not been used by other Instruments in your Multi yet.

FORCE-LOAD PRE-2.0 PATCHES IN DFD MODE: Since the DFD (Direct From Disk) mode was introduced after the KONTAKT 1.0 release, older libraries don't make use of it; if this option is enabled, KONTAKT 1.X Instruments will be loaded with their **SOURCE MODULES** set to DFD mode by default, thus making larger libraries benefit from the significantly reduced memory footprint. Note, though, that the DFD mode doesn't provide all features of the **SAMPLER** mode; if your KONTAKT 1.X Instruments use any of these features, enabling this option might change their behavior.

LIMIT FILE NAMES TO 31 CHARACTERS: When enabled, KONTAKT will restrict all file names to 31 characters during import runs. This can be helpful in certain cross-platform scenarios, as some older file systems only support filenames up to this length.

IMPORT KEYSWITCHED SOURCES INTO SEPARATE INSTRUMENTS: If this option is enabled and KONTAKT encounters any keyswitches when importing third-party formats, it will split the patch in question into several Instruments, each of which will contain the Groups that were assigned to a single key in the source patch.

WRITE ABSOLUTE PATHS INSTEAD OF RELATIVE PATHS: When enabled, KONTAKT will use absolute Sample references for Instruments that are being converted via the **IMPORT** button in the **FILE BROWSER**. Absolute paths ensure that Sample references will be kept intact when you move the Instrument file to a different location later. Note that this option only affects the operation of the **IMPORT** button; when you manually save Instruments or Multis, you'll be specifically asked whether absolute or relative paths shall be used.

DESTINATION SAMPLE FORMAT: When converting Sample data via the **IMPORT** button in the **FILE BROWSER**, KONTAKT will save Samples in the format specified here.

MAP BULK-CONVERTED SINGLE SAMPLES: If this option is enabled and you convert multiple Samples, they're fused into a single Instrument and spread on the keyboard; otherwise, a separate Instrument will be created for each Sample.

LIBRARY PATH: This is the path to KONTAKT's library folder; if you specified it during installation, it will already be set. You can always change it manually here if you need to move your library to a different location. Note that if you don't set this path, library updates might not be correctly installed, KSP scripts included in KONTAKT library Instruments may not work correctly, and moving KONTAKT projects to other platforms could cause problems.

4.3.5 Search / DB Tab

The settings on this tab affect the operation of KONTAKT's DATABASE, which is explained in detail in section 11.3 of this manual. **AUTOMATICALLY ADD LOADED / SAVED FILES TO DATABASE:** When enabled, KONTAKT will automatically add any files that you access to the DATABASE if they're not already included. This helps keeping your DATABASE up to date without the need for manual rebuilds.

The following three options let you specify which file locations should be covered by the DATABASE. This affects both manual rebuilds and automatic adding. You can only select one option at a time:

USE ALL FIXED DRIVES: If enabled, the DATABASE will include all files that reside on hard disks in your computer.

USE ALL FIXED DRIVES AND ALL NETWORK DRIVES: The DATABASE will include all files that reside on hard disks and mounted network volumes.

USE CUSTOM FOLDERS / VOLUMES: When you select this option, an editable list view will appear below it. Here you can specify locations that should be covered by the DATABASE, such as the directory or partition that contains your sample libraries. You can add locations to this list by clicking on the **ADD** button and selecting a new location in the selection dialog that appears; selecting a list entry and clicking on **REMOVE** will delete it from the list. When you're finished, you can perform a DATABASE rebuild with your new configuration right away via the **REBUILD DB** button.

4.3.6 DFD (Direct From Disk) Tab

On this tab, you can configure the Direct-From-Disk streaming engine. This allows you to optimize its performance for your specific computer configuration.

As the specifics of DFD can be a little intimidating, this tab can be switched between two modes – by default, you can tune the DFD performance with a single slider in order to find a balance between voice count and RAM usage; in expert mode, it allows you to fine-tune advanced DFD parameters. You can switch between normal and expert mode by clicking on the **EXPERT MODE** button in the lower half of the tab. In the following paragraphs, we'll indicate for each respective control whether it pertains to normal or expert mode.

AMOUNT OF MEMORY (RAM) RESERVED FOR DFD STREAMING VOICES (normal mode): This slider allows you to adjust the size of the memory area that KONTAKT will reserve and use for DFD. Although sample data will be streamed from disk in DFD mode, KONTAKT still needs to keep the beginnings of all Samples in memory, as the latency of a typical hard disk is too large



DFD configuration can be a surprisingly complex subject, as the optimal settings in each case depend on a lot of variables. Your amount of RAM, the latency and throughput figures of your hard disks, and not at least your usage profile are some of the aspects that should be taken into account. If you have a well-specified computer and use KONTAKT mainly for adding some sampled instruments to your production, you probably won't need to concern yourself with the secrets of DFD optimization; on the other hand, if you're using KONTAKT with very large, modern libraries, either on your host machine or on a stand-alone sample slave computer, we recommend that you read the "DFD Demystified" PDF document that you'll find in the "Documentation" sub-folder of your KONTAKT installation directory.

for real-time playback. Obviously, the bigger these pre-buffered sample chunks are, the less data KONTAKT will have to stream from the hard disk. Therefore, the amount of RAM that you make available as DFD pre-buffer memory has a direct impact on the maximum number of voices you'll be able to play at any time. Of course, you should only dedicate as much memory to DFD as you're able to give up; there's no point in giving away 360 MB of RAM to DFD if your host application will choke due to low memory. Below the slider, a number field displays an average number of stereo voices that you'll be able to play at the current memory setting. In conclusion, if you experience drop-outs with DFD and your computer is well-equipped with RAM, try increasing the DFD memory amount; if RAM is sparse, you should keep the slider at a lower value.

CHANNEL BUFFER SIZE (expert mode): When KONTAKT is streaming sample data from your hard disk, it needs to read this data into RAM first before it can be played back. This buffering takes place for each voice separately within memory chunks called channel buffers. If the channel buffer of a voice is very small, it will quickly run empty during playback and need to be refilled from disk; with a larger buffer, KONTAKT has more time between disk accesses, which it can use for other things (such as filling up other channel buffers). In other words, larger channel buffer sizes will reduce the disk load during streaming operation, but will also increase the memory consumption compared to smaller buffers.

RESERVED CHANNEL BUFFERS: This option allows you to specify how many channel buffers will be allocated; as these are mono buffers, each stereo voice of a DFD Instrument will use up two of them. As a general rule for stereo Instruments, you should set this value to twice the maximum voice

count of your Instrument, and add some reserve. As every channel buffer will be generated with the size specified above, the total amount of DFD memory will be the product of this number and the channel buffer size. This value will be displayed below.

OVERRIDE INSTRUMENT'S PRELOAD SIZE: If enabled, KONTAKT will ignore the preload buffer size that's embedded in Instrument files since KONTAKT 2, and use the specified buffer size instead.

4.4 Purge Menu

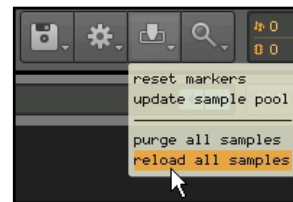
The purge mechanism in KONTAKT keeps track of which Samples in an Instrument have been actually triggered since the Instrument was loaded, and gives you the option of removing all other Samples from the Instrument. This way, you can reduce the number of Samples that are being kept in memory to the subset that you have actually used in your arrangement. Consider this example: You're working on a large orchestra piece and have just finished the cello part. The cello Instrument in your Multi covers the note range between C1 and G4 in chromatic steps, with five velocity Zones per note; in other words, it's huge. Your cello part, on the other hand, consists of alternating C2 and G1 quarter notes. Clearly, there's a lot of memory waste going on. Using the purge facility, you can play your part once – this will allow KONTAKT to gather which Samples are actually being used – and then eliminate all unused Samples from the memory. Your Instrument will work as it did before, but notes or velocity ranges that

didn't occur during the analyzing phase won't play anymore. If you change your mind later, you can reload all Samples with one mouse click.

You can control the purge mechanism via four functions which are available on both a global and a local level. The global purge functions affect all Instruments in your Multi and can be accessed via the button indicated with a down arrow in a box. You can find this button between the OPTIONS DIALOG and VIEW buttons in the MAIN CONTROL PANEL. The same menu is available for each Instrument; this way, you can use the purge feature on Instruments whose parts are already finished, while keeping others that are still in active use loaded in their entirety. You can access the local purge menu of an Instrument at the right side, just below the Instrument name, in the INSTRUMENT HEADER. Let's take a look at each of the functions:

Reset Markers: Whenever KONTAKT plays a Zone in your Instrument, it will flag the respective Sample as being used. Using this function, you can delete all of these flags, thereby resetting all data that KONTAKT has gathered about Sample usage so far. After you have finished your work on a part, you should select this function once and then play your part; this way, only the notes that have actually made it into the final part will be flagged as used. Afterwards, you can proceed by choosing the *Update Sample Pool* function described below.

Update Sample Pool: This function removes all Samples that are not currently flagged as being used from memory, and reloads any currently purged Samples that have been triggered since the last purge operation. In other words, it brings the sample pool in sync with the Sample usage flags it has gathered since the last purge operation.



The entire purge mechanism can be controlled with these four functions.

Purge All Samples: Unloads all Samples from RAM. This allows you to reverse the usual purge process: you can play your arrangement in a “silent run”, then load only the Samples that are actually being used via the *Update Sample Pool* command afterwards. Note that the **OPTIONS DIALOG** includes an option that makes KONTAKT load all Instruments without any Samples by default; this function is the manual equivalent.

Reload All Samples: Reloads all Samples, thereby reverting any previous purge actions.

4.5 View Menu

You can switch the size of your KONTAKT window between three different, pre-specified settings. These appear in a drop-down menu when you click on the magnifier icon in the **MAIN CONTROL PANEL**. For instance, you might want to keep KONTAKT within a smaller window as long as you’re just playing Instruments, then switch to a larger size when you’re switching over to Instrument edit mode. You can specify the exact dimensions for each size on the *User Interface* tab of the **OPTIONS DIALOG**.

4.6 System Performance Meters

In the upper right section of the Main Control Panel, you'll find a number of system meters that are being continually updated during operation.

The value next to the notes icon indicates the total number of voices that are currently being played. Below, the total amount of allocated Sample memory is displayed; this figure will be much smaller when you're using lots of DFD Instruments.

The meters to the right show the current CPU and disk load as LED-style bar graphs. These provide immediate visual feedback on whether you're close to maxing your performance out.



Voice count, memory, CPU, and disk meters.

4.7 Minimized View

Clicking on the rightmost button in the MAIN CONTROL PANEL will reduce your KONTAKT window to the header of the currently selected Instrument and, if it provides one, its PERFORMANCE VIEW. This makes for a convenient way to save screen space in scenarios where you're using KONTAKT as a sample player only. Above the INSTRUMENT HEADER, a reduced control panel provides two arrow buttons that will switch between Instruments, a keyboard button that will show and hide the ON-SCREEN KEYBOARD at the bottom of the window, the system performance meters, and the MINIMIZED VIEW button, which will bring you back to the normal view.

5 The Rack (Multi Instrument Mode)

The **RACK** is the place in which your mouse pointer will spend the most time when you're working with KONTAKT. It operates in one of two modes: the Multi Instrument mode lets you view and edit your Multi, while the Instrument Edit mode lets you edit an Instrument. Let's take a closer look at the first one.

When you start KONTAKT, the **RACK** will be in Multi Instrument mode. In this mode, any Instrument in your Multi will be shown as a horizontal **INSTRUMENT HEADER**, which contains the Instrument name and some controls for general parameters. Your Multi can contain up to 64 Instruments, which will be spread across 4 pages of up to 16 Instruments each.

5.1 Multi Instrument Header

At the top of the **RACK** section, you'll notice a header that contains a name field and some buttons; this header is always visible as long as the **RACK** is in Multi Instrument mode.

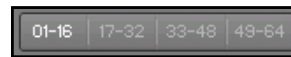


The Rack header in Multi Instrument mode allows you to manage your Multi, switch between the four Multi pages, show or hide Aux send controls, and resize each Instrument Header.

At its left side, a text field contains the name of your currently loaded Multi; if you have just started KONTAKT, this will read “kontakt_def”, as this is the default Multi file that will be loaded on startup. To change the name, just click on it and enter a new one. Clicking on the down arrow button will open the Multi QUICK-LOAD menu, which you can use to keep your favorite Multi files within an easily accessible spot; this facility is described in section 11.3.4. The left and right arrow buttons will replace your Multi with the previous or next one from the same directory, if any.

Next to the Multi name field, four page buttons allow you to switch between the four Instrument pages. You can use these pages for keeping your Instruments in separate categories when your Multi is very large, or you can just switch to the next page when the 16 available Instrument slots of your current one are occupied. Another option is to assign all Instruments on a page to channels of the same MIDI port; if you have four ports at your disposal, this method lets you easily keep track of your MIDI assignments in large Multis. Of course, nothing keeps you from assigning several Instruments to the same MIDI channel – this is a quick way of creating layered sounds.

At the right side of the header, you’ll notice three buttons; with these, you can control which types of information should be visible on each INSTRUMENT HEADER. The leftmost button, labeled Aux, toggles display of a row of Aux send controls that let you control the signal level at which each Instrument is routed to the Aux Channels, which are explained in section 12.3. The middle button switches all INSTRUMENT HEADERS to a minimized size, and the right reverts all headers back to their normal size. At their normal size, INSTRUMENT HEADERS contain more information, but also occupy more screen



Each Multi can contain up to 64 Instruments, arranged across four pages of 16 Instruments each.

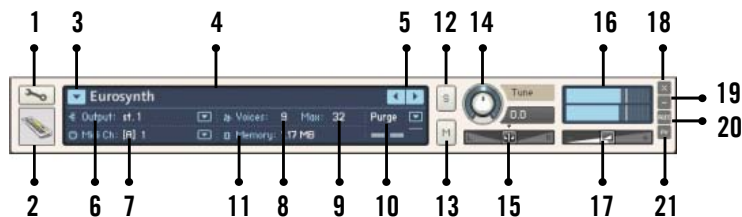


Aux show/hide, minimize headers, and maximize headers.

space – if you're not planning to adjust any Instrument parameters and would like to see an overview of all Instruments on a page, just switch all INSTRUMENT HEADERS to their minimized view.

5.2 Instrument Header

Whenever you create a new Instrument or add one to your current Multi, it will appear in the RACK as an INSTRUMENT HEADER.



An Instrument Header at its normal display size.

Each INSTRUMENT HEADER can be optionally reduced in size; the header shown here is set to its normal size, though. In this mode, it displays parameters that describe how the Instrument will work in the context of the current Multi; also, it provides some controls that allow you to adjust parameters like the Instrument's output volume, its panning position, or its mute status. Here's a run-down of the controls:

1. **EDIT BUTTON:** If you click on this button, the RACK will switch into Instrument Edit mode, and you will be able to edit the Instrument on its core level. The same button in Instrument Edit mode will return to the Multi Instrument view.
2. **CATEGORY ICON:** KONTAKT Instrument creators can choose from a range of icons that indicate the general category of their creation. This allows you to quickly identify a specific kind of Instrument visually if your RACK is rather crowded.
3. **INSTRUMENT QUICK-LOAD:** When you click on this button, the Instrument QUICK-LOAD menu will appear, which lets you keep your favorite Instruments in a common, easily accessible place. This facility is described in section 11.3.4.
4. **INSTRUMENT NAME:** This field contains the name of your Instrument. You can edit the name by clicking on it and entering a new one. Note that the name displayed here will be identical to the file name (without the .nki extension) when you load and save the Instrument.
5. **PREVIOUS / NEXT BUTTONS:** These buttons will exchange the Instrument with the previous or next one from the same directory, respectively. The exchange will be done in place, so the new Instrument will occupy the same slot.
6. **OUTPUT CHANNEL:** This field displays the currently selected Output Channel that will receive the output signal from this Instrument. Clicking on the channel name will open a drop-down menu with all currently defined Output Channels; this way, you can assign the Instrument to a different channel.

7. **MIDI CHANNEL:** This field indicates the currently assigned MIDI input channel that the Instrument will respond to. Clicking on it will open a drop-down menu that allows you to select a new MIDI channel for this Instrument. The *Omni* setting will make it respond to MIDI data on any channel; below it, the available ports of your MIDI interface will appear as sub-menus, each one containing the 16 channels of the respective ports. Note that the maximum number of distinct MIDI channels that you can use is 64 in the standalone version of KONTAKT, and 16 when using KONTAKT as a plug-in.
8. **VOICES:** This number indicates how many voices are currently being used by the Instrument.
9. **MAX VOICES:** This is the maximum number of voices that the Instrument may use at any time. You can change this value by clicking on it, then dragging your mouse up or down. If you notice that the number of currently used voices rises to the MAX VOICES value during play and you hear that voices are being cut off, try increasing this value.
10. **PURGE:** This button opens a drop-down menu that lets you execute the functions related to KONTAKT's purge mechanism on a per-instrument basis. The purge facility is explained in section 4.4.
11. **MEMORY:** This value indicates how much system memory is currently being used by the Sample data of this Instrument.
12. **SOLO button:** When you click on this button, all other Instruments in your Multi will be muted, so that you can hear its output signal in isolation. How KONTAKT will handle multiple Solo selections depends on the setting of the SOLO MODE option, which is explained in section 4.3.3.

13. **MUTE** button: This will mute the current Instrument, thus temporarily removing its output signal from the Output Channel.
14. **TUNE**: Moving this knob clockwise or anti-clockwise will change the pitch of this Instrument up or down, respectively. The control covers a range of +/- 3 octaves and will move in semitone steps unless you hold the Shift key while moving it, which lets you make finer adjustments.
15. **PAN**: This slider adjusts the panorama position of the Instrument's output signal.
16. **LEVEL METERS**: These LED-style bar graph meters indicate the current output levels across all channels of this Instrument.
17. **VOLUME**: This slider adjusts the output volume of this Instrument. You can choose whether the default value of VOLUME sliders will be -6 dB or 0 dB in the **OPTIONS DIALOG**.
18. **REMOVE INSTRUMENT**: Clicking on the "X" button in the upper right corner of an **INSTRUMENT HEADER** will remove the respective Instrument from your Multi.
19. **MINIMIZE VIEW**: When you click on this button, this **INSTRUMENT HEADER** will be minimized in size. This allows you to adjust the display sizes of headers individually.
20. **AUX**: Clicking on this button will show and hide the row of Aux send sliders below this **INSTRUMENT HEADER**.
21. **PV**: If the Instrument provides a **PERFORMANCE VIEW** panel, this button will toggle its visibility. You can read all about the **PERFORMANCE VIEW** feature in section 5.4 of this manual.

5.3 Instrument Header (Minimized)

If you want to save screen space, you can switch all or individual **INSTRUMENT HEADERS** to a minimized view, which contains only the most important parameters and controls.



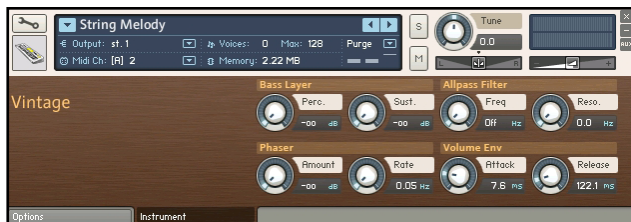
An Instrument Header at its minimized display size.

In this mode, the **INSTRUMENT HEADER** includes only the edit button, the Instrument name field, **SOLO** and **MUTE** buttons, **OUTPUT VOLUME** and **PAN** sliders, **LEVEL METERS**, and buttons for removing this Instrument from your Multi and switching the header back to its normal size. For an explanation of what each control does, refer to the section above.

5.4 Performance View

Using **KONTAKT's** internal scripting language, Instruments can provide custom control panels, called **PERFORMANCE VIEWS**. The idea behind this feature is that it makes Instrument-specific settings available in a user-friendly way that doesn't require the user to switch into Instrument Edit mode. For example, a funky guitar Instrument might provide a **PERFORMANCE VIEW** that lets you tweak its effects, like a wah-wah filter or a guitar amp simulation. The main advantage of this approach is that **PERFORMANCE VIEWS**

appear below the INSTRUMENT HEADER in the RACK; you don't need to switch to Instrument Edit mode to locate the respective parameters or make out to which controllers they are assigned. All Instruments included in the KONTAKT 3 library provide PERFORMANCE VIEWS.



If an Instrument provides a Performance View, its custom panel will appear below the Instrument Header in the rack.

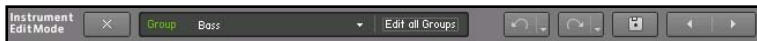
As you can see, this feature can be used to build highly customizable user interfaces; in this example, the PERFORMANCE VIEW has a custom background image and a row of tabs at the bottom, which let the user switch between different control pages.

Note that PERFORMANCE VIEWS appear only below INSTRUMENT HEADERS at normal size, not below minimized headers. Also, you can turn control panels of Scripts in your Instrument into PERFORMANCE VIEWS yourself; this process is explained in section 16.3 of this manual.

6. The Rack (Instrument Edit Mode)

Whenever you edit an Instrument, the RACK will switch into Instrument Edit mode. In this mode, all other INSTRUMENT HEADERS won't be visible anymore (you can still access them via the INSTRUMENT NAVIGATOR pane of the BROWSER, though; read how this works in section 11.1.3 of this manual); instead, the whole RACK space will be dedicated to the editors, control panels, and modulation tables of your selected Instrument. To edit an Instrument, click on the wrench icon of its INSTRUMENT HEADER when the RACK is in Multi Instrument mode.

At the top of the RACK pane, you'll notice that switching to Instrument Edit mode has also changed the header.



The Rack header in Instrument Edit mode allows you to manage your Groups, Undo or Redo your most recent actions, save the Instrument, or switch the edit view to the previous or next Instrument in your Multi.

From left to right, this is what these elements do:

EXIT button: Clicking on this button will “fold in” the Instrument and return to the Multi Instrument view.

EDITED GROUPS: This field indicates whether parameter adjustments on the Group level will affect just one or multiple Groups. If it reads **GROUP**, any parameter changes will only affect the current Group; **MULTI** indicates that

multiple Groups are currently selected for editing, and ALL warns you that all Groups of your Instrument are currently selected for editing.

DISPLAYED GROUP: This field indicates the name of the Group whose parameters are currently being displayed by the Group level modules. When you click on it, a drop-down menu that contains all Groups in your Instrument will appear. Choosing one of these Groups will select it for display and editing.

EDIT ALL GROUPS button: This button toggles the selection of all Groups for editing. It does the same as the EDIT ALL GROUPS button in the upper left corner of the GROUP EDITOR.

UNDO button: When you click on the circled arrow of this button, your last action will be undone. As KONTAKT keeps a log of your actions, you can revert more than one action to return to a specific point in your editing history. Clicking on the small down arrow icon at the right of this button will open your edit history in a dialog window; selecting an action will take you back to this point in your edit history. Note that the UNDO and REDO facilities are only available when you're working in Instrument Edit mode.

REDO button: If you reverted one or more actions via the UNDO button and change your mind, you can restore parts of your changes by clicking on the circled arrow of the REDO button. Note that you have to do this right after using the UNDO function; if you perform any other actions after using UNDO, your edit history cannot be restored. Just like the UNDO button, the REDO button will open a history list dialog when you click on the small down arrow at its right side.

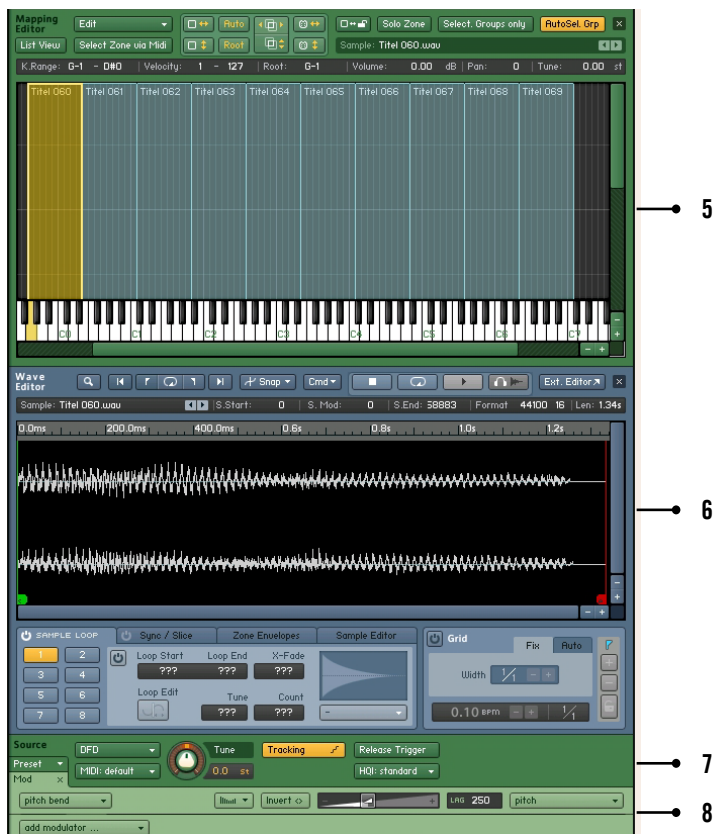
QUICK-SAVE: This button saves your Instrument in its current state; if you haven't saved it before, a SAVE dialog will appear, otherwise KONTAKT

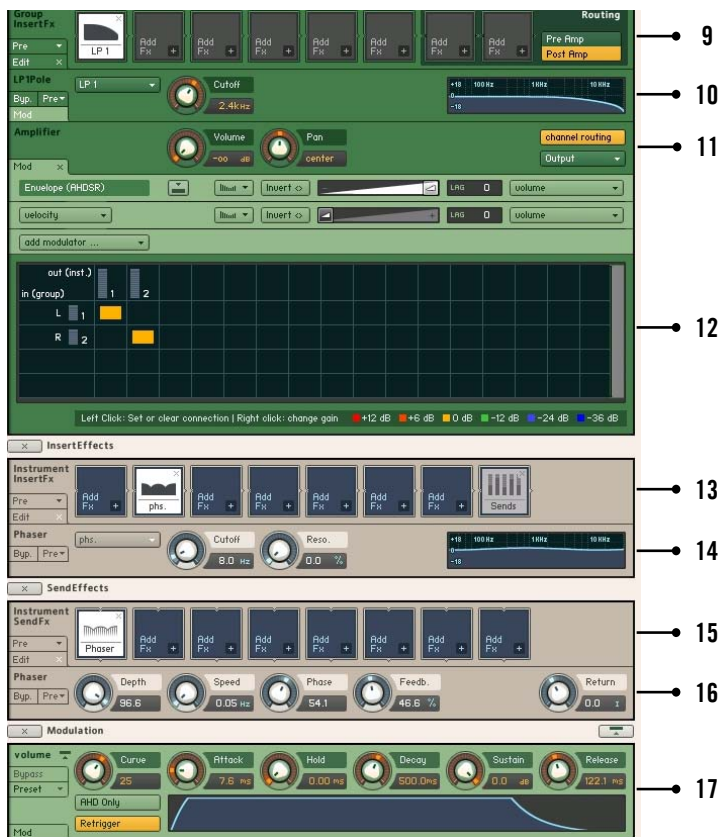
will overwrite the last version right away. Use this button generously when you're in the middle of complex editing tasks; this way, you can always revert to the last saved version if something goes wrong.

PREVIOUS / NEXT INSTRUMENT buttons: Clicking on these buttons will switch the Instrument Edit view to the previous or next Instrument in your Multi, respectively.

Below its own header, the RACK displays the INSTRUMENT HEADER of your edited Instrument (this is identical to the one that's being displayed in Multi Instrument mode), a row of buttons that will show and hide editors for various aspects of your Instrument, and a flexible vertical view in which you can access all editors, modulation and routing tables, control panels, and signal processing chains of your Instrument. The three sections at the bottom of the RACK – labeled INSERT EFFECTS, SEND EFFECTS, and MODULATION – can be optionally hidden from view by clicking the button next to their titles. When you choose to show all details, the Instrument Edit view of a full-sized, complex Instrument might look similar to this:







Instrument Edit rack, with all editors and panels opened.

If you find this a little intimidating, don't worry; you don't have to know every panel inside out before you can create useful Instruments or edit existing ones. Just conquer the interface one step at a time and refer to this manual and the INFO PANE whenever you're not sure what a specific knob, button or menu does; this way, you'll get the hang of how to get the most out of KONTAKT sooner than you might think.

Let's take a quick look at what each panel does. All interface elements will be explained in detail within the respective chapters of this manual.

1. **INSTRUMENT HEADER:** This is the same header that's displayed when the RACK is in Multi Instrument mode. You can switch back to the Multi Instrument mode by clicking on the wrench icon.
2. **EDITOR BUTTONS:** These buttons toggle the display of various editor panels in the Instrument Edit view. The MAPPING EDITOR and WAVE EDITOR buttons have an arrow icon on their right sides; clicking on this when you're running KONTAKT in standalone mode will open the respective editor in a separate window. The leftmost button, labeled INSTRUMENT OPTIONS, is special and will be explained below.
3. **SCRIPT EDITOR** (visible if the SCRIPT EDITOR button is enabled): In this editor, you can load Scripts, access their user interfaces, and edit their source code.
4. **GROUP EDITOR** (visible if the GROUP EDITOR button is enabled): This is where you select, edit, and manage the Groups in your Instrument.
5. **MAPPING EDITOR** (visible if the MAPPING EDITOR button is enabled): This editor lets you add Samples to your Instrument, map them to the keyboard, assign them to velocity ranges, and manage the Zones in your Instrument.

6. **WAVE EDITOR** (visible if the **WAVE EDITOR** button is enabled): This is where you work on the Sample level to create loops, define Slice markers for rhythmic Samples, create **ZONE ENVELOPES**, and perform destructive audio editing operations.
7. **SOURCE MODULE**: This core module takes care of the Sample playback for a Group.
8. **SOURCE MODULATION ROUTER**: In this table, you can define modulation assignments, which change parameters of the source module over time in a variety of different ways.
9. **GROUP INSERT EFFECTS** chain: This chain consists of 8 slots, each of which can take up a signal processing module. Each Group has its own Insert Effects chain, which will operate on the signal of each voice that originates in this Group separately.
10. **SIGNAL PROCESSOR CONTROLS** (visible if the **EDIT** button on the chain module above is enabled): This panel contains the controls of a signal processing module in the **GROUP INSERT EFFECTS** chain.
11. **AMPLIFIER MODULE**: This module will shape the volume of the source signals in each Group.
12. **CHANNEL ROUTING MATRIX** (visible if the **CHANNEL ROUTING** button on the **AMPLIFIER** panel is enabled): This matrix allows you to configure the signal handover between the Group and Instrument signal flow level.
13. **INSTRUMENT INSERT EFFECTS** chain: This chain works in the same way as the **GROUP INSERT EFFECTS** chain, but operates on the output signals of all Groups in your Instrument.

14. **SIGNAL PROCESSOR CONTROLS** (visible if the **EDIT** button on the chain module above is enabled): This panel contains the controls of a signal processing module in the **INSTRUMENT INSERT EFFECTS** chain.
15. **SEND EFFECTS SLOTS**: These slots take up signal processing modules which act as send effects; they can be fed individually with signals from various points of the signal flow.
16. **SIGNAL PROCESSOR CONTROLS** (visible if the **EDIT** button on the **SEND EFFECTS** slots module above is enabled): This panel contains the controls of a signal processing module in one of the **SEND EFFECTS** slots.
17. **MODULATION SOURCES**: This section contains a panel for each modulation source that you have defined in your Instrument.

6.1 Instrument Options Dialog

When you click on the leftmost button below the **INSTRUMENT HEADER** while editing an Instrument, the **INSTRUMENT OPTIONS** dialog will appear. It allows you to adjust parameters that affect this Instrument's playback behavior, MIDI response, and appearance in the **RACK**. The **INSTRUMENT OPTIONS** are divided into four categories; you can access these by clicking on the respective tabs at the top of the dialog window.



The Instrument tab of the Instrument Options dialog contains general options which affect the playing behavior of the respective Instrument.

6.1.1 Instrument Tab

VOICE STEALING MODE: The default way in which KONTAKT will free up voices when the Instrument's maximum voice count has been reached. These options are explained in section 13.3 of the GROUP EDITOR chapter.

VOICE STEALING FADEOUT TIME: When KONTAKT has to recycle a voice, it won't just cut it off abruptly, but apply a short fade-out; this eliminates clicking noises. This parameter adjusts the length of the fadeout in milliseconds.

KEY SWITCH DEFAULT KEY: If you have defined any keyswitches for your Instrument, this value specifies the default switch that will be active right after the Instrument has been loaded.

MIDI TRANSPOSE: This parameter allows you to apply a transposition offset to all incoming MIDI notes. In contrast to the TUNE knob in the INSTRUMENT HEADER, which alters the pitch of the sample playback, this value will change the MIDI notes only; for instance, a setting of 12 will have the same effect as playing an octave higher.

KEY RANGE: The keyboard range to which this Instrument will respond. Setting this parameter to different ranges across multiple Instruments is a quick way to create keyboard splits.

VELOCITY RANGE: Limits the velocity range to which this Instrument will respond.

SKIN BITMAP: To give your Instruments a distinctive appearance in the RACK, you can create your own skins. This parameter lets you choose an image file in TGA format that will be used instead of the default panel background of the INSTRUMENT HEADER at its normal size. The image needs to have a color depth of 16, 24, or 32 bits and should be 633 pixels wide – larger widths will be cut off, smaller widths will be filled with black. We have included some sample skins in the KONTAKT installation.

This feature is even more appealing when you use it in combination with PERFORMANCE VIEWS; by extending your skin image to a height of 225 pixels, which covers the area of the PERFORMANCE VIEW and the tab bar at the bottom, you can create your own panel background, add custom control labels, and visually group your custom controls to make your panels more user-friendly.

After you have added a skin to your Instrument, we recommend that you save it once with samples; this will put the skin image file into a “wallpaper” sub-folder inside the Instrument's sample folder.

6.1.2 DFD & Load Tab

DFD PRELOAD BUFFER SIZE: With this slider, you can adjust the size of each Sample portion that will be buffered in memory for instant playback. This value applies only to Samples that belong to Groups whose **SOURCE MODULE** is operating in DFD mode. If any Group in DFD mode causes drop-outs which disappear when you put the respective **SOURCE MODULE** into **SAMPLER** mode, you might want to try increasing this parameter.

6.1.3 Controller Tab

MIDI CONTROLLER #64 (SUSTAIN PEDAL): You can choose how KONTAKT should interpret and handle incoming MIDI controller #64 messages, which are usually being sent by sustain pedals:

- ▶ *Pedal + CC* will keep the Instrument in its sustain phase as long as the sustain pedal is depressed, and otherwise treats the message like a normal MIDI controller (which allows you to use it as a modulation source).
- ▶ *Sustain Pedal Without Controller* will keep the Instrument in its sustain phase as long as the sustain pedal is depressed; the message won't be available as a normal MIDI controller.
- ▶ *Controller Only:* KONTAKT won't use sustain pedal messages for sustaining Instruments, but you'll be able to access them as MIDI controllers for your own purposes.

ACCEPT ALL NOTES OFF / ALL SOUNDS OFF: When activated, KONTAKT will interpret and adhere to incoming “all notes off” MIDI messages.

ACCEPT STANDARD CONTROLLERS FOR VOLUME AND PAN: When activated, you can change the output volume and pan settings of an Instrument by sending MIDI CCs #7 and #10, respectively. These are the standard controller numbers for volume and pan.

MIDI CONTROLLER #7 (VOLUME) RANGE: This drop-down menu lets you choose how the 128-step value range of MIDI CC #7 controller messages will be mapped to the output volume slider if the previous option is enabled. The selected range endpoints correspond to the volume levels at MIDI values 0 and 127, respectively. The default setting is *negative infinity .. 0dB*, which mutes the Instrument at controller value 0 and puts it at unity gain at controller value 127.

6.1.4 Infos Tab

INSTRUMENT ICON: KONTAKT allows you to assign icons to your Instruments; these will be displayed within normal-sized INSTRUMENT HEADERS in the RACK and provide visual hints about the Instrument category. The rightmost icon in the list, labeled NEW, is the default icon for newly created Instruments. Note that KONTAKT will assign special icons to Instruments that were imported from third-party formats; these don't appear in this list.

INSTRUMENT INFO: Use this text field to enter any information, credits, or production notes you'd like to be attached to your Instrument.

AUTHOR: When you have created an Instrument and want to distribute it, you can enter your own or your company's name here.

WEBLINK: This field lets you provide a web location where people can find more information about you and your KONTAKT creations.

7. Loading and Creating Instruments

In order to add a previously created Instrument to your Multi, either in KONTAKT format (.nki) or in one of the supported foreign formats, locate your Instrument file within the BROWSER first. You can either drag it into a blank space of the RACK (which will add it to the Multi), or drag it onto an INSTRUMENT HEADER that's already in the RACK (which will replace that Instrument with the new one). Alternatively, you can choose the *Load* command from the FILE menu; a file selection dialog will appear that lets you locate and select any Instrument, Multi, or Instrument Bank file on your system.

After the Instrument has been loaded successfully, its INSTRUMENT HEADER will appear in the RACK. If required, you can now change its Output and MIDI channel assignments. Once these are correctly set, you should be able to play the Instrument via your MIDI keyboard or the virtual ON-SCREEN KEYBOARD.

If you'd like to create an Instrument from scratch, you have several options. The *New Instrument* command in the FILE menu will add an empty Instrument that's based on the default Instrument template (you can change this template by creating a default Instrument of your choice and saving it via the *Save as Default Instrument* command in the FILE menu). In most cases, you'll proceed with switching into Instrument Edit mode, opening the new Instrument's MAPPING EDITOR, and dragging Samples from the BROWSER onto the Zone grid in order to place them on the keyboard – this process is explained in detail in chapter 14 of this manual.



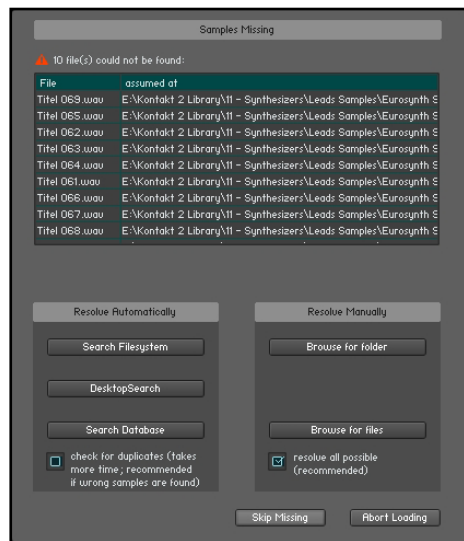
If you have enabled the “Browser: Double click loads instrument” option in the Options Dialog, you can also load Instruments by double-clicking them in the Browser. This has the same effect as dragging them to the bottom of the Multi page that's currently being shown in the Rack.

Alternatively, you can start out with a Sample or a set of Samples and let KONTAKT do the work of combining them into an Instrument. Just locate and select the Sample files that you want to use in the BROWSER, then drag them into an empty space in the RACK; KONTAKT will create a new Instrument (once again, based on the default Instrument template) and spread the Samples across the keyboard. If you do this with a WAV file that contains Slice markers or with a REX file, KONTAKT will switch the new Instrument to BEAT MACHINE mode, so that you can play your Sample in sync to your song tempo right away.

Samples Missing Dialog

As explained in the FILE MENU section of the MAIN CONTROL PANEL chapter, KONTAKT uses different ways to reference the Samples that are being used by an Instrument within the Instrument file. When Instruments are being saved in a monolith, the Sample data gets embedded in the file itself, and thus can't be accidentally separated. In a lot of cases, though, you will encounter Instruments that reference external Sample files on your system via their respective paths and file names. It's obvious that while this method creates small Instrument files and avoids unnecessary duplication of Sample data, it's not as bullet-proof as combining Instrument and Sample data into a monolith; whenever you move referenced Sample files to a different location, KONTAKT won't be able to find them anymore in the location that's being specified within the respective Instrument files. Depending on whether KONTAKT used a relative path for referencing Samples, this can even happen when you move Instrument files while keeping their referenced Samples in their original locations.

Whenever you attempt to load an Instrument whose Samples cannot be found in their expected location, KONTAKT will pop up a **SAMPLES MISSING** dialog. This window offers various options that help KONTAKT locate the missing files on your system. Once it has found them, you can then re-save the Instrument with the corrected references in order to make the changes permanent.



Samples Missing dialog, indicating that 10 Samples of the Instrument couldn't be found in the expected location.

In its upper half, the **SAMPLES MISSING** dialog displays a list of all Sample files that were referenced within the Instrument file, but couldn't be found in the expected locations; these locations are shown in the right column. Whenever you're not sure which action might have caused the **SAMPLES MISSING** dialog to appear, study the locations displayed in the **ASSUMED AT** column carefully; you might recognize a folder that you've moved to a different location at some point in the past.

In the lower half of the dialog, **KONTAKT** provides a number of commands that will either search for the missing files automatically (left side), or allow you to specify the new location manually (right side). If you're not sure where the missing Samples could be located, choose one of the automatic options on the left side:

SEARCH FILESYSTEM: This will search for the missing Samples on all file systems of your hard disks. Depending on the size and speed of your hard disks, the scanning process might take considerable time, but if the Sample files have not been renamed or deleted, they will eventually be found.

SEARCH SPOTLIGHT (Mac OS X) / DESKTOP SEARCH (Windows): This will attempt to locate the missing Samples via your operating system's native search engine. This will almost always be considerably faster than searching the file system.

SEARCH DATABASE: This will search the Samples within **KONTAKT**'s own **DATABASE**, then use any found records to locate them on your hard disk. The idea behind this is that the Samples might have been picked up by a **DATABASE** re-build process after they have been moved; if this is the case, their actual locations in your file system can be retrieved from the **DATABASE**.

This option requires a correctly built DATABASE that has been configured to include Sample data.

Note that by default, all these options search for the missing Samples by their file names only; in some cases, two or more different Samples on your hard disk might share a common name. This can cause KONTAKT to load the wrong Sample; if you notice this in your Instrument, don't save it. Instead, remove it from your Multi, load it again, and repeat the search process after you've enabled the CHECK FOR DUPLICATES option at the bottom of the SAMPLES MISSING dialog. This will make KONTAKT examine any files with matching names more thoroughly, which will sort out duplicates, but take more time than searching without this option.

If you already know where the missing Samples are located on your system, there's no need for an automatic search. Instead, choose one of the options on the right side, which allow you to locate files manually:

BROWSE FOR FOLDER: When you click on this button, a folder selection dialog will appear. After you've located and chosen a folder, KONTAKT will look for the missing Samples inside this folder and all of its sub-folders.

BROWSE FOR FILES: This option will ask you to locate each missing file manually, one at a time, via a file selection dialog. During this process, the name of the currently searched file will be displayed in the title bar of the selection dialog window.

If the RESOLVE ALL POSSIBLE option at the bottom of the right option field is enabled, KONTAKT will look for all missing Samples in each location that you specify via the BROWSE FOR FOLDER or BROWSE FOR FILES option. If it's disabled, you will be asked to provide a location for each missing file separately.

Once you have selected the appropriate search action, KONTAKT will start the file scanning process. During this scan, the missing Sample list will shrink accordingly whenever a Sample has been successfully located. Once all Samples have been found, the dialog will disappear and the Instrument will be loaded into your RACK. You should now make sure that it works correctly and then re-save it to its original location with the *Save* command in the FILE menu.

If there are still missing Samples after the scanning process, the SAMPLES MISSING dialog will reappear, which allows you to try another search option. If each attempt to locate the missing Samples fails, they either don't exist on your system anymore, or have been renamed. In such cases, you can choose to either abort loading the Instrument by clicking the right button at the bottom of the dialog, or load the Instrument without the missing Samples with the left button.



If you have moved a whole library, and the Samples Missing dialog appears each time you attempt to load an Instrument from this library, you don't need to click through the Samples Missing dialog and re-save the Instrument each time; the Batch Re-Save command in the File menu allows you to locate the referenced Samples of all Instruments below a folder at once and re-save all of them automatically. This command is explained in section 4.2 of this manual.

8. Loading and Creating Instrument Banks

An Instrument Bank allows you to combine up to 128 KONTAKT Instruments into one slot of your RACK. Only one of the Instruments in a Bank can be active at any time, and you can switch between them by sending MIDI program change messages. All Instruments in a Bank will share the same MIDI channel, Output Channel, maximum note count value, output and pan settings, and Aux send levels. You can adjust these settings in the BANK HEADER, which appears in the RACK and resembles an INSTRUMENT HEADER in structure.

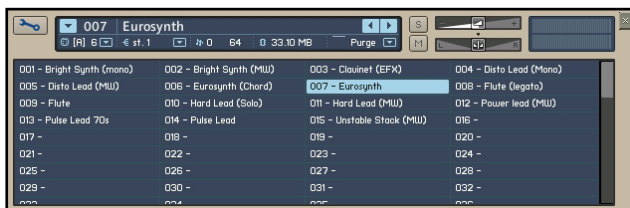
Consider this example: An orchestral sampling library provides numerous articulations and playing techniques for each instrument; these are split up into a number of KONTAKT Instrument files. For instance, the “Solo Flute” folder might contain the four files “Flute sustain.nki”, “Flute staccato.nki”, “Flute halftone trill.nki” and “Flute flutter tongue.nki”. Of course, you could just add these Instruments to your RACK and assign them to different MIDI channels; this is not efficient, though, at least not if you’re planning to use only one Solo Flute in your arrangement (and thus won’t need multiple articulations at the same time), since you’re wasting three MIDI channels and three of your 64 available Instrument slots. Instead, you could create a “Flute” bank and insert all articulations you’ll need into its slots; this allows you to switch between these articulations by sending MIDI program change messages. This work-flow is closer to the way you’d interact with a real flutist; in order to get him to adapt his playing style to



Some notation programs allow you to specify how different articulation, expression, dynamic, and playing direction marks in your score will be translated when you’re playing it back via MIDI. Assigning these items to MIDI program changes that correspond to the respective Instruments in your bank allows you to create very sophisticated setups, which allow you to create realistic mock-ups from your scores instantly without any further MIDI optimization. Refer to the manual of your notation program to find out whether it supports this method.

your music, you need to add expression, dynamic and articulation marks, as well as playing directions, to your sheet music. Similarly, you can create MIDI program changes at specific places of your sequences in any MIDI sequencer program.

To add a new, empty Instrument Bank to your current Multi, choose *New Instrument Bank* from the FILE menu. A new BANK HEADER will appear in the RACK; its controls are similar to that of an INSTRUMENT HEADER, but apply to all contained Instruments. In its name field, the BANK HEADER will display the name of the currently active Instrument. In order to add Instruments to this Bank, click on the wrench icon at the left side of its header; this will open a list of 128 Instrument slots.



To access and assign the Instruments of your Bank, open the slot list by clicking on the wrench icon in the upper left corner of the Bank header.

Dragging an Instrument (.nki) file from the BROWSER into a slot of the Instrument Bank will load the Instrument into this slot. The number in the slot field will indicate the program change number that will switch to this Instrument; in the example shown above, incoming notes on the Bank's MIDI channel will trigger the "plain" Jazz Guitar Instrument in slot 001

(this is being indicated in the name field of the BANK HEADER); sending a MIDI program change with a value of 2 will switch over to the equalized and reverberated version of the Instrument, which will then stay active until the Bank receives a new program change message.

You can edit an Instrument inside a Bank by double-clicking on the respective slot; this will put your RACK into Instrument Edit mode. Once you're done with your modifications, be sure to return to Multi Instrument mode by clicking the wrench icon in the upper left corner of the RACK, as clicking the "X" button in the upper right corner will remove the whole Bank from your Multi. Also, note that the modified Instrument can only be saved within the Bank file; there's no way to save it to a separate Instrument file.

Instrument Banks and their contents will be loaded and saved along with your Multi, but you can load and save them separately as well. KONTAKT Instrument Bank files are indicated with the extension .nkb. You can load these in the same way as you load Instruments; double-click them or drag them from the BROWSER into an empty space of your RACK, or use the *Load* command in the FILE menu.

9. The On-Screen Keyboard

KONTAKT can optionally display a virtual ON-SCREEN KEYBOARD that you can “play” with your mouse in case you don’t have a MIDI keyboard connected to your computer. You can show and hide the keyboard, which will appear at the bottom of your RACK, by clicking on the keyboard icon at the top of your KONTAKT window.



The On-Screen Keyboard, indicating keyswitches (red) and playable range (blue).

When you click on a key, the keyboard will generate a corresponding note event that will be received by the currently selected Instrument. Clicking and dragging the PITCH and MOD wheels at its left side will generate pitch bend and MIDI CC #1 data, respectively. Below the wheels, a transposition control lets you shift the displayed key range up and down.

Furthermore, the keyboard indicates used key ranges of your currently selected Instrument with colors; keys that trigger any Zones are colored blue, keyswitches are colored red. This feature provides a quick overview in which range your Instrument can be played, and which keys will switch between the different articulations.

10. The MasterKontrol Section

The MASTERKONTROL panel contains a number of global controls that affect the behavior of all Instruments in your Multi, as well as some common utility functions. It can be shown and hidden by clicking the button that depicts a metronome and a pitch fork at the top of the KONTAKT window, and will appear on top of the RACK.



The MasterKontrol section in standalone mode.

From left to right, here's a run-down of what you can find in the MASTERKONTROL panel:

MASTER VOLUME: This control adjusts the volume of all Output and Aux Channels – and thus all audio signals that leave KONTAKT – at once. Its default setting is 0.0 dB, which leaves the output levels unaffected.

MASTER TEMPO: This field displays the current global tempo in beats per minute. The tempo value affects the playback speed of sliced loops and all time-related controls that can optionally be synchronized to the tempo, such as the SPEED control of LFOs. If you're running KONTAKT in standalone mode, you can change the master tempo by clicking on the value and entering a new one, or by tapping a new tempo using the button described below. If running as a plug-in in your host program, KONTAKT will use and follow your song tempo by default; you can switch this behavior

off by deactivating the button labeled **EXTERN SYNC.** next to the tempo value, which allows you to specify the tempo manually.

TAP BUTTON: This button offers a more intuitive way to adjust the **MASTERKONTROL** tempo. Just tap this button rhythmically in quarter note values; **KONTAKT** will measure the time between taps and adjust the tempo value accordingly. If you're using **KONTAKT** as a plug-in in your host program, this button only works if you've switched off the **EXTERN SYNC.** parameter.

METRONOME: This small panel provides a simple metronome that can be handy in various adjustment or rehearsal situations both in the studio and in live environments. The metronome can be switched on and off at any time by clicking the button labeled **ON**. The knob next to it allows you to adjust the volume of the metronome click. As the tempo is displayed by the flashing LED indicator as well, turning the **VOLUME** knob all the way down will give you a purely visual metronome.

MASTER TUNE: This knob allows you to change the master reference tuning from its default value of $A3 = 440$ Hz. This might be required in situations where **KONTAKT** will be combined with the sound of orchestras or historical ensembles, which frequently use slightly different reference tunings.

REFERENCE TONE: This function provides a reference tone that allows you to tune other instruments in accordance to **KONTAKT**'s current reference tuning. When activated with the **ON** button, **KONTAKT** will play a sine wave at the frequency of the note that's being specified in the rightmost selection field. You can adjust the volume of this reference tone with the knob at the left side of the panel.

11 The Browser

The **BROWSER** allows you to organize and navigate any number of files that can be used in KONTAKT in a quick and efficient way. Among other things, you can use it to:

- ▶ navigate through your file system to locate and load KONTAKT objects, such as Instruments or Samples,
- ▶ import Instruments from various third-party sampler formats,
- ▶ manage and browse the contents of KONTAKT's **DATABASE**,
- ▶ display a convenient overview of various aspects of the currently edited Instrument,
- ▶ browse and pick modules from the library of available effects, filters, and modulators,
- ▶ assign host and MIDI automation sources to Instrument parameters.

Wherever it makes sense, you can drag and drop items from the **BROWSER** into the **RACK**, so you usually won't need to drag anything from the desktop.

The **BROWSER** can be shown and hidden by clicking on the leftmost button of the **MAIN CONTROL PANEL**. When it's active, the left side of the window consists of a section with 6 tabs, namely *Files*, *Database*, *Monitor*, *Modules*, *Engine*, and *Auto*. Let's see what each of these does.

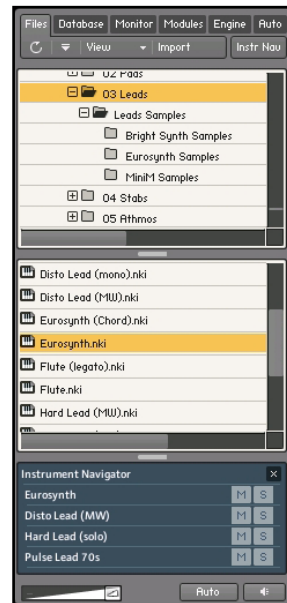
11.1 Files Tab

This part of the **BROWSER** allows you to navigate your file system in a tree-based way, which will be immediately familiar if you're accustomed to your operating system's file browsers and selectors. It consists of two main panes and an audition toolbar at the bottom of the section. There is an optional third pane, the **INSTRUMENT NAVIGATOR**, that you can toggle via the rightmost button just below the tabs. This pane is also available on the *Database* and *Monitor* tabs and will be explained in more detail later.

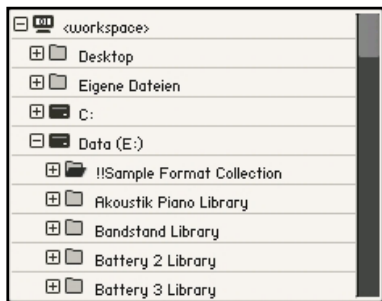
You can click on the horizontal splitter bars that separate the panes and drag them up or down in order to change the height of the respective panes. This works in other **BROWSER** tabs as well.

11.1.1 Upper (Container) Pane

This pane shows all container objects on your computer in a tree structure. The term “container” encompasses all items that contain other objects, such as volumes (like hard disks, CD-ROMs or network places), folders and monolithic sampler files that serve as “virtual folders” (more on this later). A “+” icon next to an object indicates that there are further objects contained within, which are not currently being shown; you can display those by clicking on the “+”. Conversely, clicking on a “-” next to an object hides all of its contents from the tree view.







The Files tab of the Browser pane provides a file system navigator.



The upper pane of the File Browser displays a navigable tree structure of your file system.

11.1.2 Middle (Objects) Pane

Whenever a container object that you have selected in the upper pane contains items which can be used in KONTAKT, those will show up in this pane. In contrast to the multi-dimensional tree structure of the upper pane, this list is always “flat” and does not span multiple folders. In addition to relevant files, folders (if any) will also show up in this list and can be navigated to via double-clicking; at the very least, the first item of the list will usually be the parent directory (indicated with an arrow icon). This also means that you don't necessarily need to use the upper pane for navigating through folders; however, it's usually faster and more convenient.

Name	Size	Tempo	Date
..			
 4 beat.zgr	172	100.00	30.03.
 4 beat stereo.zgr	179	100.00	30.03.
 4 beat.wav	206.86 kB		30.03.
 4 beat stereo.w	413.58 kB		30.03.

The middle pane of the File Browser, displaying a number of Samples and their file sizes, native tempos, and modification dates.

Information on the displayed items is spread across 4 columns; in addition to the filename, size and modification date, there's also a **TEMPO** column that indicates the native tempo of sliced loops. You can change the width of these columns by clicking and dragging the separator bars between their labels. Clicking on a column label will change the sort order of the list according to the respective value; clicking on the same label again will reverse the ordering direction.

Once you have found one or more items that you want to use in KONTAKT, there are several ways to load them:

- ▶ Double-click a Multi file (.nkm) or drag it from the **BROWSER** into the **RACK** to load it; KONTAKT will ask you whether you want to replace your current Multi or merge the one you've selected with the existing Multi.
- ▶ Double-click an Instrument file (.nki) or drag it from the **BROWSER** onto a free space in the **RACK** to add it to your current Multi. KONTAKT will assign a MIDI channel according to the **MIDI CHANNEL ASSIGNMENT FOR LOADED PATCHES** setting in the **OPTIONS DIALOG**. This also works with multiple Instruments.

- ▶ Drag an Instrument onto an existing **INSTRUMENT HEADER** in your **RACK** to make it replace the respective Instrument. **KONTAKT** will keep the MIDI channel setting of the previous Instrument.
- ▶ Double-click a Sample (i.e. an audio file) or drag it onto a free space in the **RACK** to create a new Instrument (based on your default Instrument) that contains a Zone with this Sample spread across the whole keyboard range. If you do this with multiple Samples, **KONTAKT** will still only create one instrument, but with a corresponding number of adjacent Zones. Note that this does not work with 8-bit Samples, as Groups created in this way will be set to DFD mode by default, which does not support 8-bit data.
- ▶ Click and drag a Sample into the **MAPPING EDITOR** of an existing Instrument to create a Zone and place it on the key or key range you're pointing at. While dragging, move the mouse pointer up and down in the **MAPPING EDITOR** to enlarge or shrink the target key range. This also works with multiple Samples, in which case **KONTAKT** will create a number of adjacent Zones. If you want to create multiple Zones above each other (thus combining a number of samples into a velocity switch that's placed on a single key), move the mouse pointer all the way down to the keyboard.

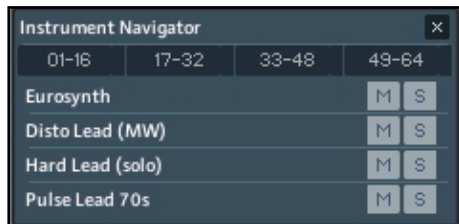
There are two ways to select multiple items in the object pane: contiguous ranges of items in the list can be selected by clicking the first item and then, while holding your Shift key, the last one in the range. Non-adjacent items can be selected with Ctrl-click (Cmd-click on Macs).



The sort order of the Browser's object pane determines in which order multiple Samples will be used in **KONTAKT**. For instance, if you're planning to create a velocity switch from a number of Samples, but realize after placement that the velocity assignment ended up being upside down, just reverse the list order in the Browser and try it again.

11.1.3 Instrument Navigator Pane

When activated with the rightmost button of the FILE BROWSER's toolbar, the INSTRUMENT NAVIGATOR pane appears at the bottom of the BROWSER. It shows a list of all Instruments in your RACK, which is being kept up-to-date at all times. It has a lot in common with the Multi Instrument view of the RACK in that it's divided into 4 pages of up to 16 Instruments each, and displays the Instrument names along with MUTE and SOLO indicators. It provides a good way to keep the big picture when you're editing an Instrument, in which case the RACK does not convey any information about Instruments other than the currently edited one.



The Instrument Navigator pane, displaying a number of loaded Instruments in the Multi.

The INSTRUMENT NAVIGATOR list will keep in sync with the page and Instrument selection in the RACK and vice versa. To switch to one of the four Instrument pages, you can either use the page buttons in the RACK header (if it's in Multi Instrument mode), or click on the page numbers at the top of the INSTRUMENT NAVIGATOR list. Similarly, you can select an Instrument by clicking on either its header in the RACK, or its entry in the INSTRUMENT NAVIGATOR



The Instrument Navigator is not strictly specific to the Files tab, but rather a utility window that's available in various tabs in the Browser. It's explained here for sake of consistency, and referenced briefly in sections about other places where it's available.

pane. If an Instrument that you select is not currently visible in the INSTRUMENT NAVIGATOR list, it will automatically scroll to its list position. Double-clicking an Instrument in the INSTRUMENT NAVIGATOR list will open it for editing in the RACK. When you're editing an Instrument, you can quickly switch to another Instrument by clicking on its name in the INSTRUMENT NAVIGATOR list; this is a great way to compare settings between Instruments, as KONTAKT will try to anchor both Instruments' editor views to the same vertical position.

11.1.4 Audition Strip

The AUDITION STRIP allows you to listen to audio files prior to loading them. This feature works with audio files and sliced loops that you select in the lower pane of the BROWSER. Note that when auditioning sliced loops, they will not be played in their native tempo (which is being displayed in the BROWSER list), but in the current tempo of your host or, if you're running KONTAKT in standalone mode, the tempo that's set in the MASTERKONTROL section.

The AUDITION STRIP is the bottom-most element of the FILE BROWSER and contains three controls.

VOLUME slider: This slider adjusts the sample playback level.

AUTO button: When enabled, KONTAKT will automatically play a Sample once when you click on it.

SPEAKER button: This button plays the selected Sample once or, if a Sample is currently being auditioned, stops the playback.



The Audition Strip allows you to play any Sample that you select in the Browser.

11.1.5 Refresh and Eject Buttons

Just below the **BROWSER** tabs, you'll see a series of function buttons and drop-down menus that are specific to the currently visible tab. On the *Files* tab, this row starts on the left side with a **REFRESH** button, depicted by a circled arrow.

Whenever the **FILE BROWSER** has not yet picked up changes that recently occurred in your file system, such as newly installed or removed sample libraries, you can force an update of the file display by clicking this button.

The button next to the **REFRESH** symbol allows you to eject your computer's CD/DVD drive(s) from within **KONTAKT**. Just select the drive in the upper pane and click on this button to eject it.



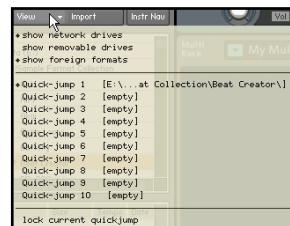
Browser refresh and eject button.

11.1.6 The View Menu

This is a drop-down menu which contains options and functions that alter the way in which information will be shown in the **FILE BROWSER** panes.

The first three items in this menu, labeled *Show Network Drives*, *Show Removable Drives*, and *Show Foreign Formats*, are toggle options; selecting them will switch them on (indicated with a small diamond next to their label) and off. With these, you can adjust whether the **FILE BROWSER** should include mounted network volumes, removable drives, and file formats that are not native to **KONTAKT** (but can be imported) in its lists.

Below the options, you'll find multiple slots labeled *Quick-Jump* and numbered 1 to 10. **QUICK-JUMPS** are location memories that you can use to conveniently access a number of frequently-visited places in your file system without the need to navigate there using the container pane each



The view menu of the File Browser contains options that determine which items will be shown.

time. The handling is simple: any location you navigate to in the **FILE BROWSER** gets immediately saved to the currently selected **QUICK-JUMP** entry. Once you switch to another **QUICK-JUMP** location, the previously selected one will keep its value. Switching back to it will bring you to the saved location, but watch out – if you navigate any further now, the **QUICK-JUMP** memory will be changed accordingly. If you don't want this, activate the *Lock Current Quick-Jump* option at the bottom of the **VIEW** menu to freeze the saved location. Instead of using the pull-down menu each time, you can also use Ctrl-F1 through Ctrl-F10 (PC) or Alt-F1 through Alt-F10 (Mac) to access the respective **QUICK-JUMP** locations via your keyboard.

11.2 Importing Non-Native Files Into KONTAKT

In addition to its own native formats, KONTAKT can transparently load and use a multitude of third-party formats without the need for external converters or arcane import procedures. In a lot of cases, using third-party content is as easy as dragging the respective files onto an empty space in the **RACK** – KONTAKT will take care of all required conversion processes behind the scenes. In other cases, you might want to import a whole library and save it on your hard disk in KONTAKT format. This functionality is provided by a powerful built-in batch converter.

You'll find a complete list of foreign sampler formats that you can use in KONTAKT in chapter 25 of this manual.

11.2.1 Direct Access to Foreign Formats

If you want to import one or more Instruments from a foreign library into your Multi without having to write out the library in KONTAKT format first, KONTAKT lets you do just that. For the most part, this on-the-fly access works very similar to loading KONTAKT's own formats; there are a few peculiarities to keep in mind, though, which stem from the different file management approaches of other samplers:

- ▶ Some samplers (e.g. EXS-24) keep program data in separate files that include references to where the actual samples can be found in the file system, while others (e.g. GigaStudio) combine large amounts of program data and samples into big monolithic files – just like KONTAKT's own monolithic files, these can be opened and browsed in KONTAKT's FILE BROWSER as if they were folders. In both cases, you can drag program files into the RACK once you've located them.
- ▶ The aforementioned sampler formats, along with some others, appear in the form of common files that you can manage via your operating system. There are others (e.g. AKAI S-1000/S-3000 or E-mu EOS) that are based on proprietary file systems, which are usually found on CD-ROMs. KONTAKT includes facilities for reading third-party CD formats, even if your operating system can't.

To help you get the grip on how the various supported foreign formats can be used in KONTAKT, here are some step-by-step instructions that cover some common scenarios.

Let's start with the necessary steps for loading a single EXS24 program. Similar steps apply to HALion and most other software sampler formats.

1. In the upper pane of the **FILE BROWSER**, locate and select the folder that contains your EXS24 program file.
2. Locate the EXS24 program file in the lower pane of the **FILE BROWSER** and drag it onto an empty space in the **RACK**.
3. **KONTAKT** will now convert the program in memory. During this process, it tries to find all referenced Samples in the locations specified in the program file. If it can't find one or more required samples, it will pop up the **SAMPLES MISSING** dialog to ask you how it should proceed; refer to section 7.1 to learn how this dialog works.

As mentioned above, monolithic files can be opened and browsed in the **FILE BROWSER** just like folders. Here's how you locate and load a GigaStudio program. Similar steps apply to Kurzweil K2x00, SountFont2, Unity, REX I/II, and some REAKTOR map formats:

1. In the upper pane of the **FILE BROWSER**, locate the GigaStudio monolith (.gig) that contains your program. You'll notice the file has a "+" icon next to it, indicating that it's a container. Select this file. The lower pane will now display the contained programs and samples.
2. In the lower pane, select the program you want to load and drag it onto an empty space in the **RACK**.

Finally, here's how to import a single program from a CD-ROM in AKAI S-1000 / S-3000 format, which has a proprietary file system that can only be read through **KONTAKT**'s **FILE BROWSER**. Similar instructions apply to E-mu EOS / EIV / ESI, Ensoniq ASR-10 / EPS, and Roland S50 / S550 / S770 formats:



Although an Instrument that has just been imported from a monolith (such as a .gig file) is readily playable, there's actually no way to reference the samples contained in the monolith in a permanent way. This means that if you save your Multi or your host project and recall it later, a Samples Missing dialog will appear as **KONTAKT** tries to load the respective Instrument. To circumvent this, we recommend that you save your Instrument to an .nki file right after importing; **KONTAKT** will save its Samples along with it.

1. While KONTAKT is running, insert the AKAI CD into your computer's CD / DVD drive. Depending on your operating system, a pop-up might appear informing you that this CD can't be read – in such cases, choose IGNORE.
2. After a short while, a new volume labeled Akai CD will appear in the upper pane of the FILE BROWSER – you may have to scroll down to the end of the list to see it. Clicking the “+” icon next to it will display the included partitions.
3. Again, click on the “+” icon next to the partition which contains your program. Below the partition name, a list of AKAI monolithic files will show up.
4. Select the monolith you want to access. The lower pane will now show a list of included programs and samples.
5. Select the program you want to load and drag it into the RACK.

Once the conversion has been completed successfully, the Instrument will appear in the RACK and can be played and edited in the usual way. If you want to re-use it at a later point without having to perform the conversion again, you should now save it in KONTAKT format. This is done in the same way as with Instruments that came in KONTAKT's native format from the outset.

11.2.2 Batch Import

If you're planning to incorporate a foreign sample library into your KONTAKT collection permanently, it makes sense to convert the whole library into KONTAKT format once, which eliminates the need for subsequent conversion steps. Importing and saving each contained Instrument manually



When converting formats that keep their samples in a separate location, those won't be duplicated during the conversion process. Instead, the resulting Instrument files will reference the original Samples on your hard disk. In such cases, the “Sample Destination Folder” setting will be ignored. To keep things easily manageable, it's recommended to choose a destination folder in a location that's close to the original Samples.

would be rather tiresome, though. With KONTAKT's powerful batch import facility, you can convert whole libraries, folders, monoliths, or volumes at once and save them to your hard disk in KONTAKT format. Here's how it works:

1. In the upper pane of the **FILE BROWSER**, locate and select a container object that contains a number of programs to be converted. This can be a folder, a monolith (like a GigaStudio .gig file), or a volume (like an AKAI S-1000/S-3000 CD).
2. Click on the button labeled **IMPORT** at the top of the **FILE BROWSER**. A pop-up dialog will appear asking you to specify destination folders for the converted Instrument and Sample files.
3. Specify suitable destination folders by clicking on the **CHOOSE** buttons and locating them via the file selector.
4. Once the destination folders are set correctly, click on **CONVERT** to start the import process. Depending on the size of the imported set, this might take a while.
5. Once the process has finished, the status window will disappear. You can now navigate to the folder you've specified in the **FILE BROWSER** and access your library in KONTAKT format.

11.2.3 Importing From Other Media

If you owned a hardware sampler at some point, you might have sampler data on media other than CD-ROMs, such as floppy disks, magneto-optical disks or hard drives, that you'd like to use in KONTAKT. If these are formatted in your sampler's proprietary filesystem, KONTAKT won't be able to read them directly in the same way as it reads proprietary CD-ROMs,

but there's still a way to access their contents. With freely available third-party software, you can copy the raw contents of such a medium into an image file on your hard disk, then access this image within KONTAKT. This section describes two ways to accomplish this on Macs and PCs.

On a Mac, you can use Apple's own Disk Utility program to create images from media. Disk Utility is part of the standard OS X installation. Here's how it works:

1. Start Disk Utility.
2. Insert the medium into the drive. It should appear as an icon in the volume list on the left side, most likely with a label similar to UNTITLED 0.
3. Select this volume and choose *Disk Image from (...)* from the FILE -> NEW submenu, with (...) being a disk ID similar to *disk3s1*.
4. A dialog will appear, which asks you for a location and filename for the image file.
5. If the process has finished successfully, you'll see a new file with a .dmg extension in the chosen location. Copy this file into the folder Macintosh HD/Users/[username]/Documents/Native Instruments/Kontakt 3/images

and start KONTAKT. The volume should appear in the upper pane of the FILE BROWSER and can be imported in the usual way via the IMPORT button.

On Windows XP, images can be created with the Translator Free utility from ChickenSys. Download it from http://www.chickensys.com/downloads/translator_free.php and make sure to include the "ASPI for Windows XP" component in your installation. Here's how to create the image:

1. Make sure that your drive is visible in the XP Explorer and, if it's a drive that uses removable media, that your medium is inserted.
2. Start Translator Free and locate your drive in the **My Computer** tree. It will have label similar to "SCSI-ATAPI" or "IOMEGA Zip 100". If you can't find it in the tree, open the *Drives* tab in the **Options** dialog (**SELECT TOOLS -> OPTIONS**), choose **NERO ASPI DRIVER**, quit the program and reboot your machine, and repeat steps 1 and 2.
3. Expand and select the elements beneath the volume to check whether you can read the contents of your drive.
4. Right-click on the volume and select "Create Virtual Drive" from the context menu. Choose the first option, **COPY ENTIRE DRIVE**, and click on **WRITE VIRTUAL DRIVE**. You'll be asked for a name and location for the image file.
5. Click **SAVE**. A new image file should appear in the selected location. Put it into the folder

C:\Documents and Settings\[username]\My Documents\Native Instruments\Kontakt 3\images

and start **KONTAKT**. The volume should appear in the **FILE BROWSER** and can be converted in the usual way via the **IMPORT** button.

In the same way, you can create image files from CD-ROMs and use them. While it's certainly easier to access the CD-ROMs directly from within **KONTAKT**, this method is useful for backing up your media, and also cuts your import times by a considerable amount.

11.2.4 Format-Specific Notes

There are some peculiarities to be aware of when working with certain formats. This list provides an overview.

- ▶ EXS24: All versions are supported.
- ▶ Apple, ACID, BeatCreator and REX loops: Loops of these types can be dragged directly into the **RACK** or the **MAPPING EDITOR**. If multiple loops are being imported at once, they will be combined into one Instrument, with each loop assigned to a separate Group.
- ▶ Reason NN-XT: Refill programs are encrypted and therefore cannot be imported directly. Open the NN-XT patches of your choice in Reason's NN-XT module and save them as SXT files, then import these into KONTAKT.
- ▶ GigaStudio: All versions are supported. There is no way to have the resulting Instruments reference the samples contained in GigaStudio monoliths in a permanent way, but when you save the patch, you will be prompted to save out new samples. You can choose the destination sample format for imports – WAV or AIFF – on the *Load / Import* tab of the **OPTIONS** dialog.
- ▶ HALion: All versions up to 2 are supported; version 3 patches are encrypted and therefore cannot be imported.
- ▶ Yamaha A-3000, A-4000, A-5000: Media need to be in DOS format.
- ▶ VSampler: All versions up to 2.5 are supported.
- ▶ BATTERY: BATTERY 3 Cells can only be imported via the *Import Group* command, which you can find in the **EDIT** menu of the **GROUP EDITOR**.

- ▶ Bitheadz DS-1 Unity: Encrypted and encoded Unity libraries are not supported.
- ▶ Akai MPC: Supported MPC versions are MPC-60, MPC-3000, MPC-2000, and MPC-2000XL. Nested folders are not supported; only the contents of the root folder will be loaded.
- ▶ Kurzweil K2500, K2600: Only patches that don't use any Samples from the original on-board ROM can be imported.
- ▶ Roland S700, S770: Sample programs in these formats can only be accessed via image files. To find out how to create these, refer to section 11.2.3.

11.3 Database Tab

What good is a sampler if you can't find the files you want, and find them quickly? That's what KONTAKT's DATABASE is all about. The DATABASE stores and manages information about all Instruments, Multis, Banks, and Samples that can be found on your computer, whether these files are stored on hard disks or on network volumes. Using the DATABASE extensively to access your data offers several benefits:

- ▶ In contrast to the FILE BROWSER, the DATABASE BROWSER will show only those folders and files that actually contain KONTAKT-relevant items (Instruments, Multis, Banks, and Samples). Other objects are hidden from view, which means you won't be distracted by irrelevant content.

- ▶ The whole DATABASE can be searched for keywords in a matter of seconds, with a “live” display of results providing immediate feedback.
- ▶ Instruments, Multis, and Banks that appear in the DATABASE BROWSER can be easily selected for inclusion in the QUICK-LOAD menus.

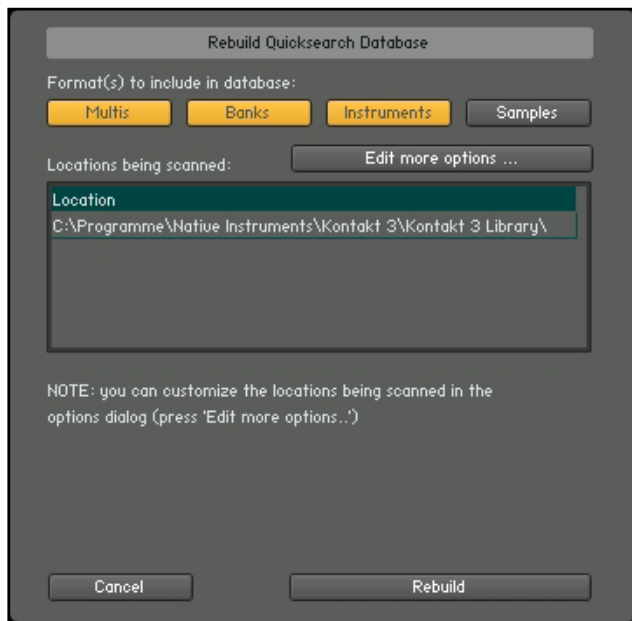
You can access all DATABASE-related functions and contents on the *Database* tab of the BROWSER.

11.3.1 Building or Rebuilding the Database

Before you can start working with the DATABASE, KONTAKT has to perform a scan of your computer's volumes in order to build an index of relevant files. In this manual, this process will be referred to as “building” or, if a DATABASE already exists, as “rebuilding”.

To avoid scanning parts of your file system that don't contain any relevant files anyway, you can restrict the building process to certain locations or volumes. You can specify these on the *Search / DB* tab of the OPTIONS dialog. Please refer to section 4.3.5 for an in-depth description of the options. If you keep all your sample libraries in a specific place, you should adjust these settings before building your DATABASE for the first time in order to keep scanning times short.

To build or rebuild the DATABASE, click on REBUILD DB in the tool bar of the DATABASE BROWSER. A dialog with several options that affect the scanning process will appear.



The rebuild options allow you to specify which items should be included in which locations.

The four buttons at the top allow you to adjust which file types will be included in the DATABASE. It's generally a good idea to include Multis, Banks and Instruments, as these are the main types of files that you'll encounter during everyday use. Whether to scan for Samples as well depends on your usage profile – including all Samples into the DATABASE tends to

make it rather large, which in turn can have a negative effect on the search performance. If you don't frequently create your own Instruments and therefore need to quickly browse a large number of Samples, it's recommended to leave this button inactive.

Below the format buttons, you'll see a list of locations that will be scanned. This is the same list you can access through the **OPTIONS** menu, and a quick button that will open this menu has been added for convenience.

Clicking on the **REBUILD** button will start the scan process, which can take some time, depending on the size of your library and which formats you have selected for inclusion.

Once the **DATABASE** has been built, **KONTAKT** will notice when you load, save, or import items that are not yet included in the **DATABASE** and update its contents accordingly, so during normal use, you usually won't have to rebuild the **DATABASE** manually; when you delete anything from your library, however, **KONTAKT** won't automatically detect the changes, so it's best to repeat the rebuilding process after you've deleted a large amount of data.

KONTAKT loads its **DATABASE** into memory at startup; if it's rather huge, this might take a while. In contrast to previous versions, though, **KONTAKT 3** keeps this loading process in the background, so you can start working with **KONTAKT** right away without having to wait. The loading progress is displayed in the status bar at the bottom of the window.

NEW

Previous versions of **KONTAKT** made a distinction between rebuilding and updating the Database; as most changes are now detected and adapted to transparently, the update function has been removed.

11.3.2 The Database Browser

The *Database* tab of the *BROWSER* consists of a tool bar at its top and a pane below it that will show either a search box and result list, or a tree view of your *DATABASE*'s contents. You can change between these views via the first two buttons in the tool bar, labeled *SEARCH* and *QUICK-LOAD*.

Just like in the *FILE BROWSER*, an *INSTRUMENT NAVIGATOR* pane is available at the bottom of the *BROWSER* and can be hidden or shown via the rightmost button of the tool bar. Please refer to section 11.1.3 for in-depth information on what this pane does.

11.3.3 Searching the Database

The *SEARCH* page is the view in which you'll be working most of the time when you're using the *DATABASE*. It's the default view when you select the *Database* tab, and can be accessed via the *SEARCH* button in the toolbar of the *DATABASE BROWSER*.

On this page, you can browse the contents of your *DATABASE* in a flat list view and rapidly filter the displayed results by file types and keywords.

At the top, you can see four filter buttons. By switching them on or off, you can include or exclude certain file types in your search results. Of course, searching for a file type requires that that specific type was being included in the last *DATABASE* (re)build run, or else it won't show up in the results either way.

Below the filter buttons, there's a *QUICK-SEARCH* input box. Whatever you enter in this box will be used as a keyword filter on the object names immediately. The results are being continually filtered as you type; this makes for a very intuitive way of locating items.



The *Quick-Search* field at the top of the *Database Browser* allows you to filter the contents of the list according to keywords.

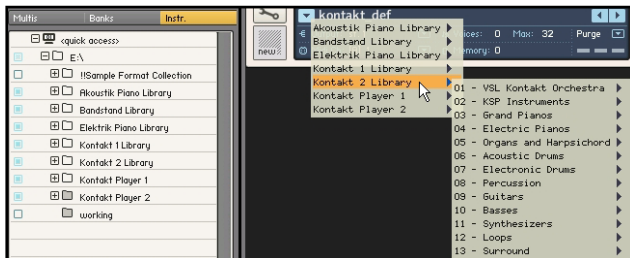
The largest amount of space on the search page is taken up by the results list; as long as the QUICK-SEARCH box is empty, it will show all items in the DATABASE that match the currently selected object types.

If a search yields more than the maximum number of results that can be shown on one page, they are spread over multiple pages. These pages can then be navigated with the arrow bar between the search input box and the results list. The outer arrow buttons jump to the beginning or the end of the list, while the inner buttons allow you to move one page forward or backward.

Once you have found what you've been looking for, just drag the respective item into the RACK in order to load it. This works in exactly the same way as loading items from within the FILE BROWSER does. There's also a drop-down context menu with further actions, which appears when you right-click on an item in the DATABASE BROWSER. With this menu, you can open the selected item's location in the file system navigator of your operating system, as well as directly add the item to the respective QUICK-LOAD menu of its type (see below).

11.3.4 Creating Quick-Load Menus

QUICK-LOAD menus allow you to keep your favorite Instruments, Multis, and Banks in a readily accessible, common place, where they can be quickly accessed and added to your RACK. More specifically, clicking the down-arrow buttons at the left side of any MULTI, INSTRUMENT, or BANK HEADER will open a hierarchical menu, which allows you to quickly select a new object from your favorites list of that particular type.



Quick-Load menus provide a convenient way to keep your favorite Instruments, Banks and Multis in a common, easily accessible place.

Before you can use this feature, you'll have to choose items from your collection that should appear in the three QUICK-LOAD menus. Since their entries are always a subset of the contents in your DATABASE, it's obvious that the selection process takes place in the DATABASE BROWSER.

Clicking on the QUICK-LOAD button in the tool bar of the DATABASE BROWSER will present you with a tree view of the contents in your DATABASE and, below that, a pane that shows the contents of the currently selected folder. At the top of this view, there are three buttons that select which of the three QUICK-LOAD menus – MULTIS, BANKS, or INSTRUMENTS – is currently being displayed in the upper pane. As long as a QUICK-LOAD menu is still empty, it provides a direct link to the respective tab that allows you to select items for inclusion in this menu.

The two panes work similarly to the FILE BROWSER. In the upper one, a "+" icon next to a folder indicates that it contains additional folders, which can be displayed by clicking on the icon. At the left side of this pane, you'll

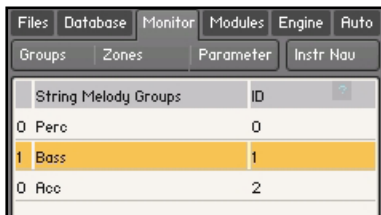
notice a column of checkboxes. Checking one of those next to a folder adds a corresponding submenu item to the currently edited QUICK-LOAD menu, which replicates the contents of this folder. In other words, the submenu will include all contained items of the selected type – Multis, Banks, or Instruments – and also all of its sub-folders, should they contain further items of this type. Clicking on a checked box again will uncheck it and remove the corresponding submenu, as well as all of its contents, from the respective QUICK-LOAD menu.

Folders which are not selected for inclusion themselves, but contain other folders which are, are indicated with a shaded filling in their checkbox. This allows you to quickly locate marked folders, even if they're currently hidden from the tree view.

Whenever you select a folder that includes items of the selected type in the tree view, the lower pane will show these items in a flat list view. Just like the folders in the upper pane, you can select these items separately for inclusion in the respective QUICK-LOAD menu by clicking the checkboxes at their left side.

11.4 Monitor Tab

When you're editing a complex Instrument with lots of Groups and Zones, it's sometimes hard not to get lost in the intricacies of KONTAKT's editing facilities. The BROWSER's *Monitor* tab counteracts this by providing a handy overview of various aspects of your currently edited Instrument. Similar in nature to the INSTRUMENT NAVIGATOR pane, it shows a continually updated and searchable list of all Groups and Zones in your Instrument. It allows you to quickly include and exclude Groups for editing, and provides a context sensitive parameter view that shows the values of the parameter you touched last across all Groups.



The screenshot shows the 'Monitor' tab selected in the top menu bar. Below it are sub-tabs: 'Groups', 'Zones', 'Parameter', and 'Instr Nav'. The 'Groups' sub-tab is active, displaying a table with the following data:

	String Melody Groups	ID
<input type="checkbox"/>	Perc	0
<input checked="" type="checkbox"/>	Bass	1
<input type="checkbox"/>	Acc	2

Monitor tab, displaying all Groups of the “String Melody” Instrument.

At the top, you'll notice a tool bar with four buttons, the first three of which will switch the MONITOR view into the respective display mode:

GROUPS: This view provides a list of all Groups in your Instrument. It will only work in Instrument Edit mode. The leftmost column indicates whether a Group is marked for editing – it corresponds to the checkboxes next to



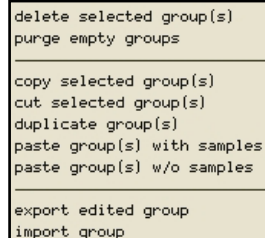
The Group selection only affects commands that can be found in the “Edit” menu of the Group Editor, and is thus different from the editing checkbox, which is being used for changing parameters across multiple Groups.

the Group names in the GROUP EDITOR – and can be clicked on to toggle the edit status of the respective Group. At the right side of the list, the Group IDs are displayed as a quick reference for KSP script editing. Groups can be selected by clicking on their names; multiple selections work in the same way as they do in the FILE BROWSER, i.e. Shift-clicking below or above a selected Group will select a range, a Ctrl-click (Cmd-click on Macs) will add Groups to the active selection. Alt-clicking will select all currently visible Groups for editing, and you can rename Groups by double-clicking on their name and entering a new one. Finally, right-clicking on a Group will open a context menu with various Group-related actions; this is identical to the EDIT menu of the GROUP EDITOR.

You can toggle a QUICK-SEARCH function by clicking on the button to the right side of the list header. This will show a text input box above the list; while it is visible, the list will only show Groups whose names contain whatever you enter into this box. You can hide (and, in consequence, deactivate) the QUICK-SEARCH feature by clicking the “X” button on the right side of the search bar.

ZONES: This view displays a list of all Zones that are contained in your Instrument across all Groups. Otherwise, it works exactly like the Groups view, and includes the QUICK-SEARCH feature as well. Double-clicking a Zone will open it in the WAVE EDITOR.

PARAMETER: When you switch to this view and touch any knob, the MONITOR pane will show the values of the respective parameter across all Groups in your currently edited Instrument, or, if you’re not in Instrument Edit mode, across all Instruments in your Multi. This makes for a convenient way to



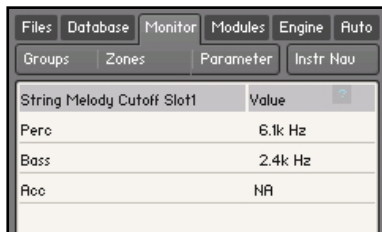
```
delete selected group(s)
purge empty groups

copy selected group(s)
cut selected group(s)
duplicate group(s)
paste group(s) with samples
paste group(s) w/o samples

export edited group
import group
```

Right-clicking on a Group name opens a context menu with editing options.

compare settings across Groups. You can also change parameter values directly within the list by clicking on their value and moving the mouse vertically, just like you would do on the respective knob.



Monitor tab, displaying the values of filter cutoff parameters across all Groups.

Of course, parameters will only appear next to Groups that actually contain the edited parameter as well. For instance, if you're adjusting the **GRAIN** parameter of the **SOURCE MODULE** – which is unique to the **TIME MACHINE** mode –, all Groups that are not currently in **TIME MACHINE** mode, and therefore don't know this parameter, will be indicated with "NA" in the **VALUE** column.

Just like the **FILE** and **DATABASE BROWSERS**, the **MONITOR** pane optionally provides an **INSTRUMENT NAVIGATOR** list. This can be shown and hidden with the rightmost button of the **MONITOR** toolbar. For an in-depth explanation of what this pane does, please refer to section 11.1.3.

11.5 Modules Tab

Clicking on the *Modules* tab of the BROWSER will present you with a convenient library that allows quick access to KONTAKT's collection of internal signal processing and modulation source modules. You can use this view to quickly locate the appropriate module for a given task, read a detailed description of what it does and how it's used, and drag it directly into your Instrument.

At its top, the *Modules* tab has a tool bar of mode buttons. The first three buttons on the left are used for selecting the category of modules you want to browse.

EFFECTS: This list includes all of KONTAKT's audio effects. These can be dragged into empty slots in the GROUP INSERT EFFECTS and INSTRUMENT INSERT EFFECTS chains, as well as into the INSTRUMENT SEND EFFECTS section. Note that some of the modules are limited in where they can be used; if a module can't be added to one of the three places, KONTAKT will indicate this by changing the mouse pointer to a "stop" icon when you drag the item to this place.

FILTERS: A list of all filter modules available in KONTAKT. The filter collection is further divided into SAMPLER, SYNTH, and EFFECT filters, as well as EQs. These sub-categories can be selected with a second row of buttons that appears below the tool bar. The filter modules can be dragged into the GROUP INSERT EFFECTS and INSTRUMENT INSERT EFFECTS chains, but not into the INSTRUMENT SEND EFFECTS section, where using filters rarely makes sense.



The Modules tab provides a convenient browser for all kinds of modules which are provided by KONTAKT.

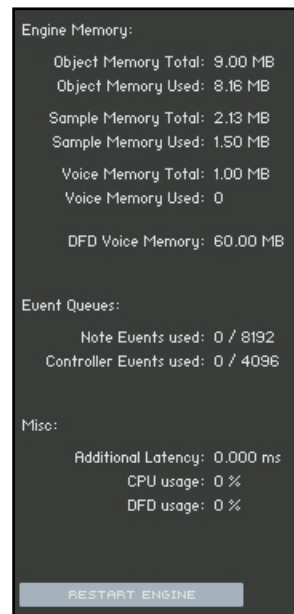
MODULATORS: This list covers all internal and external modulation sources available in KONTAKT. It's further divided into **ENVELOPES**, **LFOs**, **OTHER** modulation sources, and **EXTERNAL SOURCES** via a second row of buttons below the tool bar. To create a new modulation, locate the appropriate modulation source module from the library, and drag it onto the knob of the Group parameter that you want to modulate. This will open the **MODULATION ROUTER** of the respective module and add a new entry, which you can then adjust for modulation intensity, polarity, and other parameters. Please refer to chapter 22 to learn how KONTAKT's modulation system works in detail.

INFO: The rightmost button of the tool bar toggles an info section at the bottom of the **MODULES** view. When you click on any module in the library, this section will display a detailed description of the module's function, its potential uses, and all of its parameters. This provides a great way to get familiar with KONTAKT's library of effects, filters and modulators.

11.6 Engine Tab

The *Engine* tab in the Browser displays an overview of various system resources, such as detailed memory and CPU usage statistics. The information provided on this page is mainly intended for power users; when you have a problem and get in contact with the Native Instruments support, they might ask you for specific values from this page.

At the bottom of this page, a **RESTART ENGINE** button allows you to force a re-initialization of KONTAKT's audio engine in case of CPU overruns.



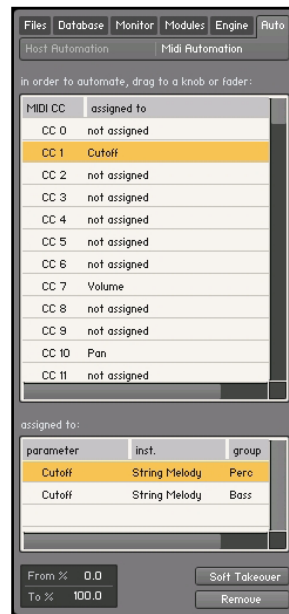
The Engine tab provides an overview of the current status of KONTAKT's audio engine.

If you're using KONTAKT as a host plug-in, there will be another button below labeled **OFFLINE (BOUNCE) MODE**. This is intended for hosts that don't correctly advertise this mode to their plug-ins when bouncing or freezing tracks. You can check if your host behaves correctly in this regard by observing the state of the button when bouncing or freezing; if it turns orange, KONTAKT receives the bounce signal from the sequencer. If it doesn't and you experience crackles or drop-outs, you can activate this button manually before bouncing or freezing.

11.7 Automation Tab

Whenever you need to control any parameter of an Instrument from outside KONTAKT, using for instance your sequencer's automation system or MIDI controller data generated by an external fader box, you can easily pick and assign the appropriate automation source from the *Auto* tab of the **BROWSER**.

At the top of the *Auto* tab, two buttons allow you to switch between the list of automation sources that are provided by your host – this list will be empty if you're running KONTAKT in standalone mode – and MIDI controllers. Assigning a source to a parameter works the same way in both lists; just select a source from the list and drag it onto a knob whose parameter you want to automate.



The MIDI Automation page displays a list of assignable MIDI controllers at the top, and details of the selected assignment at its bottom.

If you want to assign a fader of a master keyboard or a MIDI controller box, but are not sure which controller number is the right one, just move the fader when the MIDI automation list is visible - KONTAKT will flash a red “lightning bolt” icon next to the respective list entry when it receives any MIDI controller data, which allows you to quickly spot and assign the appropriate controller.

You can edit assignments and their parameters by selecting them in the list. If the selected item is assigned to one or more parameters, these will show up in the list below. At the bottom of the pane, you can adjust some parameters of the assignment that's selected in the lower list:

FROM % / To %: By default, automation controllers are mapped in a way that makes them cover the whole available range of the assigned parameter. By changing these parameters, you can alter the scaling of the assignment so that the automation values are mapped to a limited range of the assigned parameter. A side effect of this is that this “slice” of the parameter's range can then be automated with finer resolution.

SOFT TAKEOVER: This function avoids sudden parameter jumps that can happen if received automation data is different from the current value of the assigned parameter. If you activate this button, the assigned parameter will not be changed until an automation value is received that matches the parameter's current value. A typical example would be the assignment of an external fader to a filter's cutoff parameter; if the filter cutoff is currently set to 50% and you slowly move the fader upwards, KONTAKT will softly pick it up as soon as it reaches its mid-point.

REMOVE: This button deletes the automation assignment that's selected in the lower list.



Multiple parameters can be assigned to the same automation source. This allows you to control multiple aspects of your Instrument with a single controller, such as increasing the brightness of an Instrument in unison with the loudness. Also note that modulation wheels usually send MIDI Controller #1, while and volume controls send #7.

12 The Output Section

KONTAKT's **OUTPUT SECTION** provides a routing and mixing environment that is laid out in the way of a traditional mixing console. The output signals from all Instruments in your **RACK** will first arrive in this section, where they are then routed to the physical outputs of your audio interface or into your host software. The **OUTPUT SECTION** panel allows you to:

- ▶ create, delete, rename, and configure Output Channels, which act as mono, stereo, or multichannel signal routing destinations for your Instruments,
- ▶ rename and configure Aux Channels, which act as additional routing destinations for “signal taps” at various locations across your Instruments and Instrument send effects,
- ▶ change the output volumes of Output and Aux Channels,
- ▶ add, remove, and edit signal processors on Output and Aux Channels, and
- ▶ monitor your output levels.

To show and hide the **OUTPUT SECTION** panel, click on the “faders” button in your **MAIN CONTROL** panel. The panel will appear in the lower half of your **RACK** space.



The Output section, displaying a stereo Output Channel strip at the left, and the four Aux Channel strips at the right.

12.1 Panel Controls

On the left side of the OUTPUT SECTION, you can see one or more channel strips for the Output Channels, followed by four Aux Channel strips. Output and Aux Channels have identical controls, namely (from top to bottom):

CHANNEL NAME: This name will be used throughout KONTAKT whenever it refers to this channel. You can change it by clicking on the field and entering a new name.

CHANNEL INSERT SLOTS (only visible if the SHOW INSERTS button is activated): These take up signal processing modules that act as insert effects on

this channel's signal. Refer to chapter 19 for more information on signal processing in KONTAKT.

CHANNEL FADER and LEVEL METER: The vertical fader controls and displays the output gain of this channel. Next to it is a LED-style bar graph meter that provides visual feedback on the signal level.

CHANNEL CONFIGURATION button: Clicking on this button will open a dialog window, in which you can configure this channel's name, the number of audio channels it carries, and its physical output assignment.

In addition to the channel strips, the **OUTPUT SECTION** has a tool bar at its top, which contains the following functions:

ADD CHANNEL: creates a new Output Channel and adds a corresponding channel strip. New channels will be named <NEW> by default and configured for stereo signals.

DELETE CHANNEL: Removes the currently selected channel from the **OUTPUT SECTION** (to select a channel, click on its border).

SHOW INSERTS: Toggles whether the insert slots will be shown. If deactivated, the height of the panel will be reduced in order to save screen space.

EDIT EFFECT: Toggles the display of control panels that belong to signal processing modules in the insert slots. When activated, the control panel of the currently selected module will be displayed above the mixer view.

RESET OUT MAP: Resets all physical output assignments of your Output and Aux Channels by assigning all outputs of your audio hardware or your host across the channels from left to right in ascending order.

MAKE DEFAULT: Saves the current configuration as a default setting that will be used whenever you're starting KONTAKT. Note that when you load a Multi whose output configuration is different from this default – either by

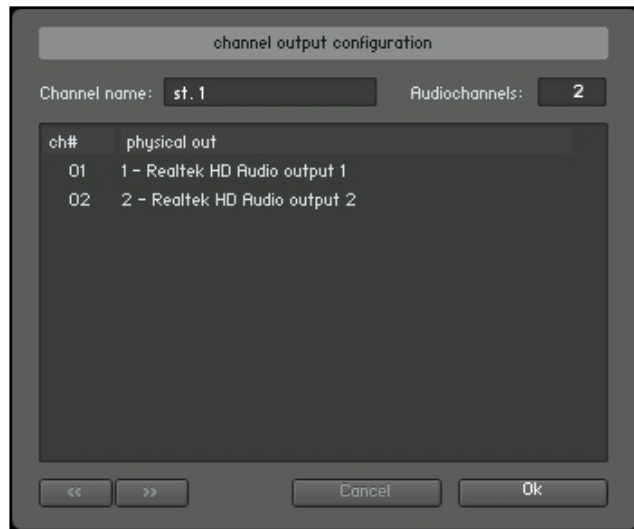
using the Load command in KONTAKT or implicitly by recalling a song with saved KONTAKT settings in your host –, the Multi's configuration will be used instead. Also, every instance type of KONTAKT – standalone, VST, AU, and RTAS – will keep its own default output configuration separately from the others in order to avoid collisions.

12.2 Working With Output Channels

In KONTAKT, you can route the output signal of each Instrument in your Multi to any Output Channel that you've defined in the Output Section. Each of these Output Channels can be configured to carry between 1 and 16 audio channels – new Output Channels are configured for stereo signals by default, but you can change this setting in the channel's configuration dialog. When you create a channel, it's recommended to name it in a descriptive way by clicking in the top-most text field of its channel strip and entering a name. This way, you can easily locate it within the Output drop-down menu of an Instrument.

Whenever you play a note, the respective Instrument's output signal will arrive at the assigned Output Channel and be sent, after it has passed the channel inserts (if any) and the volume fader, to the physical output defined in the channel's CONFIGURATION DIALOG. The bar-graph display next to the channel fader will give you an idea of the signal level at the output. Note that the MASTER VOLUME control located in the MASTERKONTROL section will affect the levels of all Output and Aux Channels in your OUTPUT SECTION.

Your output configuration always needs to contain at least one channel, so you can't delete a channel if it's the only one. New Instruments will always be assigned to the leftmost channel in the Output Section by default. To change the number of audio channels that are carried by an Output Channel, or its physical output assignments, click on the **CONFIG** button at the bottom of the channel strip.



In the Channel Configuration Dialog, you can adjust the number of audio channels and the respective physical output assignments.

The CHANNEL CONFIGURATION DIALOG that appears provides these elements:

CHANNEL NAME: This field replicates the field at the top of a channel strip. You can enter a new name by clicking on it.

AUDIO CHANNELS: Adjusts the number of audio channels this channel will carry, up to a maximum of 16. To change the number, click on the field and drag your mouse up or down.

OUTPUT MAP: This list displays all audio channels of this Output Channel along with their assigned physical destinations – which can be either tangible output jacks on your audio interface or “virtual” connections to your host, depending on whether you’re using KONTAKT in standalone or host mode. To change a physical output assignment, click on its name and choose a new output from the drop-down menu.

PREVIOUS / NEXT buttons: These buttons jump to the settings of the previous or next channel of the Output Section, allowing you to quickly adjust the output configuration for all channels at once.

12.3 Working With Aux Channels

The four Aux Channels in KONTAKT are basically identical to Output Channels, but receive their signal from other places. While each Instrument routes its output signal to exactly one Output Channel, you can additionally send this signal to one or multiple Aux Channels at adjustable levels. This allows you to easily create sub-mixes. That’s not all, though – you can also use the Aux Channels as routing destinations for all Send Effects that appear in your Instruments. This allows you to “tap” wet effect signals in

order to process them independently from the dry signals. How this kind of routing works is explained in detail in chapter 19 of this manual.

Apart from this difference, Aux Channels work in exactly the same way as Output Channels; each has its own channel strip in the Output Section, can contain up to four insert signal processors, and can be routed to specific physical outputs. In addition, the levels of all Aux Channels can be adjusted globally with the MASTER VOLUME control located in the MASTERKONTROL section.

12.4 Outputs in Host Mode

When using KONTAKT in standalone mode, the assignment of physical outputs within the CHANNEL CONFIGURATION DIALOG is straightforward: the drop-down menu will contain all outputs (up to 32) which are provided by the audio interface that you've selected in the Audio / MIDI setup dialog. When using KONTAKT as a plug-in in audio hosts, things get a little more complicated, as each host handles plug-ins with multiple outputs differently.

The maximum number of (mono) audio channels that you can assign in host mode is limited to 32 for the VST version of KONTAKT, and 16 for the AU and RTAS versions. The VST plug-in is special in that it comes in 3 different flavors with 8, 16 or 32 outputs, respectively. In AU and RTAS environments, the host will determine the actual number of outputs. Refer to the documentation of your host program to learn how this is being handled in your case.

Note that KONTAKT has to advertise its number of outputs during instantiation, which means that it can't successfully change its output configuration on the fly during operation. In consequence, when you try to change anything in the **OUTPUTS SECTION**, a window will pop up asking you to save and reload your song in order to let the host accommodate to the changes. Before you do this, click on the **MAKE DEFAULT** button in order to make your new settings global for all new instances.

Another caveat relates to the fact that the output configuration of each KONTAKT instance will be saved along with your song; this can result in the rather unfortunate case of several loaded KONTAKT instances with different output configurations. This can seriously confuse your host and lead to unexpected behavior, so when you're working with KONTAKT as a plug-in, we recommend that you make all output configuration changes global right away by clicking on the **MAKE DEFAULT** button.

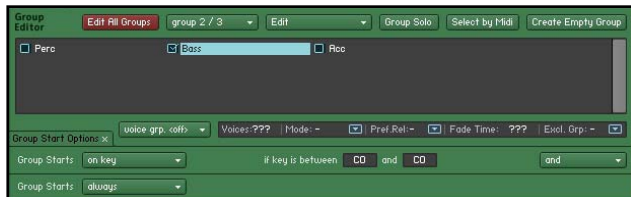
13. The Group Editor

Groups are perhaps the most prominent entity of a KONTAKT Instrument. In addition to providing a way to combine and use a common signal path for any number of Zones in your Instrument, Groups allow you to define conditions on which Zones will be played, adjust how the voice allocation for the contained Zones will be handled, and provides a selection mechanism that lets you change parameters in unison across groups. What's more, you can export and import Groups to and from your hard disk, which is the most convenient way to copy parts of one Instrument to another.

Generally, when you create your own Instruments, you should find a consistent way to distribute your Zones into Groups. This can be a common aspect of Zones that serves as an attribute for dividing them into categories; for instance, if you create a chromatically sampled Instrument with four velocity layers, you could distribute the Zones on each layer across four Groups named “vel 0-31”, “vel 32-63”, “vel 64-95” and “vel 96-127”, or similarly. This way, should you decide later that the highest velocity layer needs some additional “sparkle” to cut through your mix, you can simply select the respective Group for editing and add a EQ with a treble boost to its `GROUP INSERT EFFECTS` chain. Similarly, if you want to add release samples, you'll need to move them into a separate Group in any way, as the required `RELEASE TRIGGER` parameter always acts upon a whole Group.

Once you've gotten the hang of how the Group concept works, you'll need a convenient way to create, delete, access, name, and manage the Groups

in your Instrument; this functionality is provided by the GROUP EDITOR. When you're in Instrument Edit mode, click on the button labeled GROUP EDITOR at the top of the Instrument Edit view; the editor will appear in the RACK.



The Group Editor, opened on an Instrument which contains 3 Groups. Only the “Bass” Group is currently selected both for display and for editing.

The GROUP EDITOR is divided into four sections. At its top, a control header provides several buttons and drop-down menus. The largest amount of space is taken up by the Groups list below, which will display all Groups in your Instruments as a scrollable list. At the bottom of the editor, you'll find a row of several parameters that pertain to the assignment of Voice Groups, and the GROUP START OPTIONS button in the lower left corner will show or hide an additional set of rows which contain the Group start conditions. Let's take a look at what each of these elements does.

13.1 Control Header

This row of buttons and drop-down menus at the top of the **GROUP EDITOR** provides common utility functions for easy Group management. The following sections will explain each of these elements, from left to right, in detail.



The header of the Group Editor contains a number of options and utility functions.

13.1.1 Edit All Groups

If this button is activated, all parameters that you adjust on the Group level from that point on will affect all Groups in the currently edited Instrument. This button is just a convenient shortcut for checking all edit boxes in the Group list; the same function is also available via a button located in the **RACK** header when you're in Instrument Edit mode.

As an example, suppose you have three Groups with a modulation assignment for each, which assigns an LFO to their pitch in order to create a vibrato effect. If you decide now that the vibrato effect is a little too strong across all Groups, you don't need to change the respective modulation intensity in each Group. Just activate the **EDIT ALL GROUPS** button and decrease the respective **INTENSITY** parameter in one of the Groups; the respective parameters in all other Groups will change along.

We recommend that you always switch this feature off right after you've used it. If you leave it on and make any adjustments to Group parameters later without keeping it in mind, you'll potentially destroy carefully tweaked parameter settings in other Groups.

You can find more information on how to change parameters across Groups in section 13.2.

13.1.2 Group Selector

Next to the **EDIT ALL GROUPS** button, you'll notice a label that indicates the currently selected Group, as well as the total number of Groups in your Instrument. Clicking on it opens a drop-down menu that allows you to select another Group; clicking on the Group name that's displayed in the **RACK** header when you're in Instrument Edit mode will do the same. In contrast to clicking on a name in the Group list, however, this action won't enable the selected Group for editing at the same time, which makes it the preferred way of selecting Groups if you just want to check out their contents without editing them.

13.1.3 Edit

This drop-down menu contains a number of utility functions, most of which act on all Groups that are currently selected in the Group list. Note that this selection is different from enabling Groups for editing; selected Groups will be indicated with a filled or hollow rectangle around their name in the Group list, while Groups that are enabled for editing will be indicated with a checked box in front of their name.

Let's take a look at each function in this menu:



The Edit menu is also available as a right-click context menu both inside the Group Editor and the Groups tab of the Monitor.

Delete Selected Groups: Deletes any selected Groups. If any of the Groups still contain Zones, they will be deleted as well; in such cases, you'll be asked if you're sure about this.

Purge Empty Groups: Deletes all Groups that don't contain any Zones.

Copy Selected Group(s): Copies the selected Groups to the clipboard.

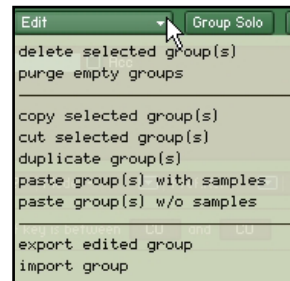
Cut Selected Groups(s): Moves the selected Group and its Zones to the clipboard for later use, removing the Group from the Group list in the process.

Duplicate Groups(s): Creates identical copies of the selected Groups.

Paste Group(s) with Samples: Inserts the contents of the Group clipboard into the Group list, leaving their Zones and referenced Sample information intact. Note that if you copied the respective Group(s) beforehand, therefore creating duplicates by pasting them, the Zones will be duplicated along with the Groups, so later changes to the Zone parameters in one Group won't affect the Zones of its copy.

Paste Group(s) w/o Samples: Inserts the contents of the Group clipboard into the Group list, omitting any Zones in the process. This way, you'll get empty Groups that replicate the settings of a previously copied or cut Group.

Export Edited Group: This function allows you to save the currently selected Group to an .nkg file on your hard disk, which you can re-use in other Instruments. In contrast to other commands that act on all selected Groups, this one doesn't handle multiple selections; only the currently displayed Group, which will be indicated in the Group list with a filled rectangle around its name, will be saved. When you click on this function, a pop-up dialog will ask you to specify a location and name for the file. In addition,



The Edit menu contains editing commands that operate on the currently selected Group(s).



Using the cut, copy, and paste commands in the

Group Editor, you can move and copy Groups between Instruments. This even works across multiple KONTAKT instances and sessions.

you can also choose between different ways of how the referenced Samples in this Group should be handled: *Patch Only* won't save the Samples, but reference them at their original positions in the Group file, *Patch + Samples* will save the Samples along with the Group file in a definable location, and *Monolith* will combine both Group data and its referenced Samples into one large file.

Import Group: Load a Group in .nkg format and add it to your Instrument, along with all of its contained Zones. This command also allows you to import BATTERY 3 Cells.

13.1.4 Group Solo

If this button is activated, all Groups except the currently selected one will be muted. This lets you conveniently check out the contents of a Group acoustically when working with multiple Groups, whose Zones overlap in order to create layered sounds.

13.1.5 Select by MIDI

If this button is enabled, you can select Groups by playing notes on your keyboard. When KONTAKT receives a MIDI note, it checks all Groups for Zones that match its note number and velocity, and selects any Groups that contain such Zones in the Group list. This makes for a very intuitive way to quickly switch between Groups; suppose you're working on a drum set with every instrument being assigned to a separate Group. Instead of locating the bass drum Group within the Group list and clicking on its name, you just play a bass drum note on your keyboard, and the corresponding Group will be automatically selected.

13.2 Group List

This pane will display a list of all Groups in your currently edited Instrument. If the number of Groups won't fit into the window, a scroll bar will appear on its right side. Here you can select Groups and enable them for editing.

In order to select a Group for viewing, just click on its name; it will be highlighted with a filled rectangle, and all currently visible controls on the Group level will now show the parameters of this Group. Any command you select from the **EDIT** menu of the Group Editor will now operate on this Group only. Double-clicking an entry allows you to change its name.

While only one Group can be displayed at any time (which will always be indicated with a filled rectangle in the Group list), you can select multiple Groups by holding the **Ctrl** key (Command on Macs) while clicking on separate Groups to add them to your selection, or holding the **Shift** key while clicking on a second entry to include all Groups between the first and the last one in your selection. This selection affects only upon which Groups the commands in the Edit menus will act; to find out how to change parameters across multiple Groups, read on.

You'll notice a small check box next to each Group name in the Group list, which will always be enabled on the list entry on which you clicked last. It indicates whether the parameters of the respective Group will be changed along when you do any adjustments. In other words, when you enable the check boxes next to multiple Groups and then move any controls of the currently displayed Group (such as the **VOLUME** or **PAN** knob of the **AMPLIFIER MODULE**), the parameters of the other Groups will be affected as well. This



The check box next to a Group name indicates whether this Group is selected for editing.

transfer happens in an absolute fashion; settings in the other Groups will simply be replaced with your new ones. This can easily result in unintentional changes to parameters in other Groups than the currently visible one, so be sure to check whether other Groups are currently enabled for editing before you do any adjustments on Group level modules. This is made easier by a text indicator in the **RACK** header; as long as you're in Instrument edit mode, it will indicate how many and which Groups are currently being enabled for editing.

Note that the *Monitor* tab in the **BROWSER** offers you alternate views for the functions described in this section. These can greatly simplify managing Groups and changing parameters across Groups; depending on your preference, you might want to use them instead of the Group list for some operations. The *Monitor* tab is described in detail in section 11.4 of this manual.

13.3 Voice Groups

The concept of Voice Groups allows you to fine-tune the way in which KONTAKT allocates audio voices to Groups. Please don't confuse Voice Groups with Groups; in spite of the similar names, they're entirely different concepts. To understand Voice Groups, let's begin with an example.

A typical sampler program of a drum set contains at least one sample of a closed hi-hat and one of an opened hi-hat. As the ringing sound of an opened hi-hat will be immediately cut off when the drummer closes it, we can conclude that these sounds never occur at the same time; therefore,

we could simulate this behavior by limiting the maximum voice count of the hi-hat to one. As each played Sample will take one voice, and the last played Sample will have priority over any Samples that were triggered before by default, playing the closed hi-hat Sample will cut a still ringing open hi-hat Sample off.

How can we accomplish this? You can adjust the maximum number of voices to be used for an Instrument in the `INSTRUMENT HEADER`, but this would restrict all other parts of the drum kit to one voice as well. A more practical way would be to make use of the Voice Group concept: it allows you to create a voice allocation setting and apply it to an arbitrary number of Groups in your Instrument.

In contrast to Groups, you don't have to create or manage Voice Groups; instead, 128 of them are pre-defined in every Instrument. By default, Groups are not assigned to any Voice Group, which means they will share the pool of voices as defined in the Instrument Header with all other Groups. By assigning some of your Groups to one of the 128 Voice Groups and adjusting this Voice Group's parameters, you can define a new set of voice allocation rules for these Groups. For instance, you could solve the hi-hat problem by assigning the closed and open hi-hat Groups to Voice Group 1, then set the voice count of this Voice Group to one. There are more parameters to a Voice Group than its maximum voice count; these will be explained later.

The 128 Voice Groups can be assigned and edited in the strip below the Group list of the `GROUP EDITOR`. Selecting a Voice Group from the drop-down menu at its left will assign all currently selected Groups to this Voice Group, and display its parameters in the fields to the right.



The row of parameters below the Group list allows you to assign and adjust Voice Groups.

Here's a run-down of these parameters, from left to right:

VOICES: Adjusts the maximum number of voices that can be used by the Groups in this Voice Group. If a Sample is triggered and the maximum voice count has already been reached, voices of Samples that would otherwise still sound will be “sacrificed” and recycled.

MODE: This setting decides which of the currently allocated voices will be sacrificed and recycled if a newly triggered Sample would otherwise exceed the maximum voice count for this Voice Group:

- ▶ *Kill Any:* Let KONTAKT decide what to do.
- ▶ *Kill Oldest:* The oldest, still playing Sample will be cut off.
- ▶ *Kill Newest:* The most recently triggered Sample will be cut off.
- ▶ *Kill Highest:* The note with the highest pitch will be cut off.
- ▶ *Kill Lowest:* The note with the lowest pitch will be cut off.

PREF REL: If this button is activated and the Voice Group runs out of voices, KONTAKT will give already released notes a higher priority when it decides which voices to keep.

FADE TIME: Adjusts how long a sacrificed voice will fade out before it disappears. The fadeout length is specified in milliseconds. This may cause the overall number of voices to temporarily exceed the maximum value.

EXCLUSIVE GROUP: This drop-down menu allows you to assign the current Voice Group to one of 16 Exclusive Groups. Assigning two or more Voice Groups to the same Exclusive Group will cause Samples from one Voice

Group to cut off all still-sounding Samples from the other Voice Groups assigned to the Exclusive Group. When you re-consider our hi-hat example, you'll notice that an alternative solution would be keeping the samples in separate Groups and assigning them to the same Exclusive Group. This has the added benefit that you can edit the Group-level signal processing of both samples separately.

13.4 Group Start Options

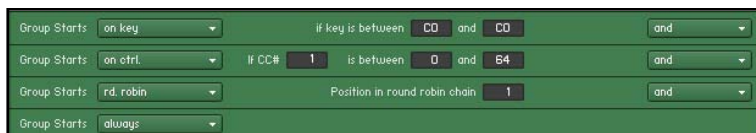
By default, each Zone in a Group will always play its assigned Sample when a note is received that matches its keyboard and velocity range. However, there are applications that demand for more control about when the Zones in a Group will come active:

- ▶ When you sample an acoustic Instrument, you might want to provide multiple, slightly different Samples for each note and velocity range, then have KONTAKT cycle between them in a round-robin fashion when note repetitions are played; this eliminates the dreaded “machine gun effect”, which is a dead giveaway of sampled instruments. For this, you need a way to make each Group wait for its turn before it sounds.
- ▶ With the advent of large, modern sample libraries, it has become customary to let the user switch between different articulations with keys on his master keyboard that are unused by the Instrument's Zones; these so-called keyswitches require a way to make Groups only

come active when their respective keyswitch was the last received one.

- You might want to switch between Groups depending on the value of a MIDI controller; for instance, lots of modern piano libraries use separate sample sets for notes which are played with the sustain pedal depressed and released.

In conclusion, the GROUP START OPTIONS allow you to define a range of conditions that have to be met before the respective Group will become active and can output any sound. The list of these conditions is hidden from the GROUP EDITOR view by default; you can show it by clicking on the GROUP START OPTIONS button in the lower left corner of the GROUP EDITOR.



Multiple Group start conditions, combined with “and” operators. This means that all specified conditions must be met before the Group becomes active.

Each row of this list has a drop-down menu at its left side; to add a condition to the list, select its general type from this menu first. To the right of the menu, KONTAKT will then show the respective parameters that belong to the respective condition along with explanatory labels, as well as an operator drop-down menu that logically combines this entry with the next one.

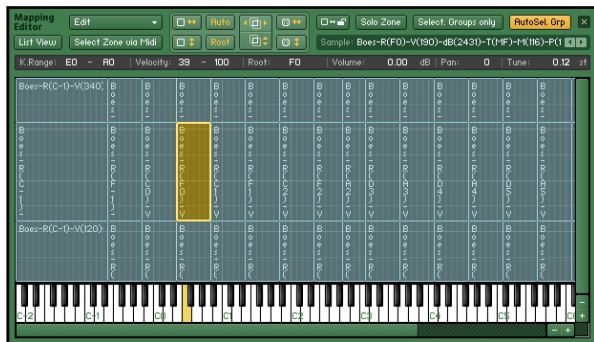
The GROUP START OPTIONS list includes the following types of conditions:

- ▶ *Always*: This is a no-operation value. If it's the only value in the list, the selected Group will always be active. In lists with more than one row, this value serves as a marker for the last row in the list, as well as an entry that deletes rows from the list when you choose it.
- ▶ *Start on Key*: This condition lets you define keyswitches. A Group with this condition will be disabled until a trigger note within the defined range is received; it will be disabled again when another Group in your Instrument with a *Start on Key* condition will come active, so that you can switch between Groups with single key strokes.
- ▶ *Start on Controller*: The Group will come active when KONTAKT receives a MIDI controller within a specific range. It will be deactivated again when a controller value outside the range is received.
- ▶ *Cycle Round Robin*: All Groups that have this condition in their GROUP START OPTIONS, and contain Zones that match the key and velocity range of an incoming note, will be cycled in a round-robin fashion on each similar note. Among other things, you can use this feature to add realistic variations to note repetitions, or automatically alternate between left and right strokes on percussion instruments.
- ▶ *Cycle Random*: Like *Cycle Round Robin*, but notes will be cycled randomly instead of sequentially.
- ▶ *Slice Trigger*: This option was used by slice Groups in KONTAKT 2. It's provided for backwards compatibility and should not be used explicitly.

By adding multiple conditions to the list and connecting them with the logical operators you'll find in the drop-down menu at the right side, you can create very complex combinations of conditions. Note that the last entry of the list (which will be an *always* condition) won't be taken into account when your list contains at least another condition entry.

14 The Mapping Editor

Reconsider the structure of a KONTAKT Instrument: Samples – which are mere audio files – are made playable by creating Zones in KONTAKT that reference these files. In order to tell KONTAKT which Sample to play when a specific note is received, you need to place each Zone on the keyboard and specify a range of velocity values that it should respond to. In addition, you can adjust parameters like volume, pan or tune on a per-Zone basis. All of these facilities (and a few more) are provided by the MAPPING EDITOR. To open it, click the button labeled MAPPING EDITOR just below the INSTRUMENT HEADER. The same button will also hide it again.



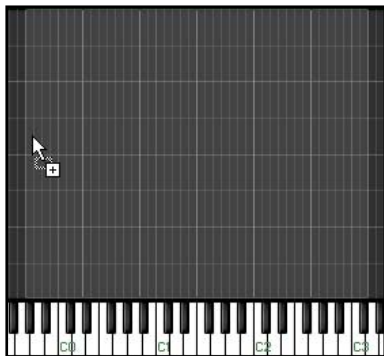
The Mapping Editor, displaying the Zones of an Instrument which contains 3-layer velocity switches throughout its playable range.

The MAPPING EDITOR consists of three parts:

1. At the top, a control strip with 2 rows of buttons and menus provides access to a number of utility functions that operate on your selected Zones.
2. A status line displays the parameters of the currently selected Zone and allows you to change it.
3. The largest space is taken up by the Zone grid, a two-dimensional panel with a keyboard at its bottom, which displays and lets you change the key range (horizontal axis) and velocity range (vertical axis) of each Zone in an intuitive, graphical way. Scroll bars at the right and lower border allow you to move the view around, as well as zoom vertically and horizontally by clicking the “-” and “+” buttons; the “-” and “+” keys on your number pad will do the same. Alternatively, you can quickly zoom into a specific region by holding the Alt key while clicking and dragging the mouse on the grid; this will open a “rubber band” selection frame, which will fill up the whole view with its selected area when you release the mouse button. To zoom out again, just click somewhere on the grid while holding the Alt key. When you play a note on your MIDI keyboard, a small red marker should appear above the corresponding key of the on-screen keyboard, with higher velocities being indicated with a higher position in the grid.

14.1 Mapping Samples Manually

You can manually create Zones by dragging one or multiple Samples from the **BROWSER** or your desktop into the Zone grid of the **MAPPING EDITOR**. While dragging, a highlighted region will tell you where KONTAKT would place the Zone(s) on the keyboard. When you release the mouse button, the Zones will be created; if you change your mind and don't want to add new Zones, just move your mouse outside the **MAPPING EDITOR** and release the button.



While you keep your mouse button depressed, KONTAKT will highlight the pattern in which it would map new Zones to the keyboard.

In which way KONTAKT will distribute the new Zone(s) depends on your mouse position and whether you're dragging one or multiple Samples:

- ▶ Dragging a single Sample into the Zone grid will create a Zone that spans the entire velocity range, and will be placed on one or several adjacent keys. When you move the mouse all the way to the bottom of the grid, the Zone will be assigned to a single key; moving the mouse upwards will gradually enlarge the keyboard range of the Zone, until it spans the entire keyboard when you're at the top of the grid.
- ▶ Dragging multiple Samples into the Zone grid will create a corresponding number of adjacent, non-overlapping Zones, starting with the key at your horizontal mouse position. Just like when you drag single Samples, the vertical mouse position will adjust the size of each Zone's key range. When you move your mouse all the way to the top of the grid, all Samples will be layered in overlapping Zones that span the whole key range.
- ▶ Dragging multiple Samples onto a key of the keyboard below the grid will create a corresponding number of Zones that evenly divide the velocity range on that key. This makes for a convenient way to quickly create velocity switches.

Note that when you drag multiple samples from the BROWSER into the MAPPING EDITOR, the sort order in which they appeared in the BROWSER will also determine the order in which the corresponding Zones will be placed. For instance, if you'd like to create an eight-way velocity switch out of samples named "Piano-C3-1.wav" through "Piano-C3-8.wav", you should make sure that the Samples list in the BROWSER is sorted by name in ascending order before you select and drag the Samples into the MAPPING EDITOR.

In addition to Samples, you can also drag one or multiple sliced loops into the **MAPPING EDITOR** to place them on the keyboard. In this case, the newly created Zones won't belong to the currently selected Group; instead, a new Group will be created for each Loop with its **SOURCE MODULE** set to **BEAT MACHINE** mode.

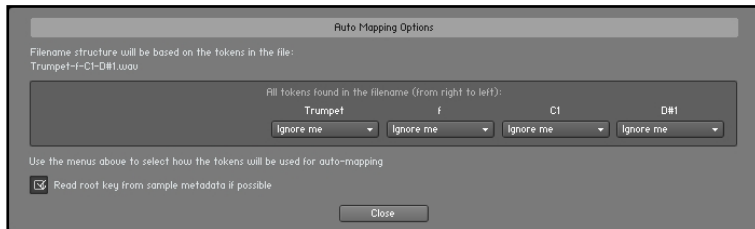
14.2 Mapping Samples Automatically

Placing Zones manually by dragging Samples from the **BROWSER** into the Zone grid works well if your Instrument won't contain a lot of Zones, or if your Samples are conveniently named in a way that makes it possible to pre-sort them in the **BROWSER** before you create Zones out of them. But what if the samples of your violin set are not named "Violin-1.wav" through "Violin-14.wav", but instead "Violin-G2-A2" through "Violin-A#5-C6"? There's no way to get the **BROWSER** to sort them in any meaningful way. For scenarios like this, the **MAPPING EDITOR** includes an **AUTO-MAPPING** feature. It consists of a customizable filename scanner that first attempts to determine which parts of your Sample's filenames could contain valuable information, then lets you assign to which Zone parameters these parts should be mapped.

To use the **AUTO-MAPPING** feature, you'll have to create Zones out of your Samples first by dragging them into the **MAPPING EDITOR** as described above. While doing this, you won't have to care about aspects that can be derived from the Sample filenames later. For instance, if your filenames contain the key range, you don't need to place the Zones anywhere particular; they

will be moved to their correct destinations by the **AUTO-MAPPING** feature anyway.

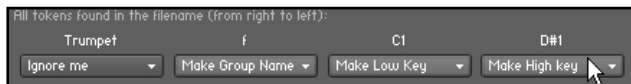
In the next step, mark all Zones in the **MAPPING EDITOR** upon which you want the **AUTO-MAPPING** feature to act. You can select multiple Zones either by holding the Shift key while clicking on them, or by clicking on the grid background and dragging the mouse to open a “rubber band” selection frame. When all Zones you want to process are selected, open the **EDIT** drop-down menu at the top of the **MAPPING EDITOR** and choose *Auto Map – Setup*. A dialog window will appear, which displays the result of the filename scanning process.



The Auto Mapping dialog, displaying a filename that has been split up into four tokens.

At the top of this dialog, you can see which filename has been used to determine where the interesting parts of the filename could be. These so-called “tokens” are any strings that appear in the filename and are separated from each other with non-alphanumeric characters like spaces, minus signs or underscores. Below, the filename is displayed again, this time split up into its determined tokens, with a drop-down menu below

each of them. These menus allow you to specify for each token whether it shall be ignored or used to derive any Zone information. For example, if your Samples are called similar to “Trumpet-f-C1-D#1.wav”, with the “f” indicating the dynamic layer and the notes representing the low and high endpoints of the key range, you can leave the drop-down menu of the first token (“Trumpet”) at its *Ignore Me* entry, while setting the menus of the second, third and fourth tokens (“f”, “C1” and “D#1”) to *Make Group Name*, *Make Low Key* and *Make High Key*, respectively.



Tokens marked “Ignore me” won’t be used for any automatic Zone adjustment.

Of course, this applies only if you want to separate multiple dynamic layers into Groups, otherwise you can leave the second menu set to *Ignore Me* as well. When you enable the `READ ROOTKEY FROM SAMPLE METADATA IF POSSIBLE` option at the bottom of the dialog, KONTAKT will read and use the root key information that’s embedded in some WAV and AIFF files, if available, instead of trying to get it from the filename. Once the settings accurately reflect the information contained in your filenames, click on the `CLOSE` button at the bottom of the dialog.

Now, with the Zones still selected, choose the *Auto map selected* command from the `EDIT` menu at the top of the `MAPPING EDITOR`, or use the keyboard shortcut `Ctrl-T` (`Cmd-T` on Macs). If you correctly identified all filename tokens in the previous step, KONTAKT will now automatically arrange and place the Zones according to the information it gets from the filenames of

their referenced Samples. If anything goes wrong, you can use the **UNDO** button in the **RACK** header to revert the process and revisit the *Auto Map – Setup* dialog.

14.3 Managing Zones

Once you've created Zones for your Samples, you can take care of adjusting their parameters to your needs. Each Zone carries the following parameters with it:

- ▶ **KEYBOARD RANGE:** This is the range of adjacent notes on your keyboard to which the Zone will respond. For instance, a keyboard range of “C3 – D#3” tells KONTAKT that the respective Zone shall be played when a C3, C#3, D3, or D#3 note is being received. If a Zone is being assigned to a single key (as it's the case with chromatically sampled Instruments), the keyboard range will look similar to “C3 – C3”.
- ▶ **VELOCITY RANGE:** This upper and lower limit specifies to which velocity values the Zone will respond. A Zone that will be triggered regardless of the velocity will have a velocity range of “0 – 127”.
- ▶ **ROOT KEY:** This is the “source” key at which the referenced Sample was recorded. When the Zone is being played at this key, no transposition will take place. Note that an incorrect root key value will result in a transposition offset of the whole Zone, as KONTAKT will transpose Zones based on the distance between their root key and the actual received note. Also, for any transposition to occur at all, the **TRACKING** parameter of the respective Group's **SOURCE MODULE** needs to be enabled.

- ▶ **VOLUME:** This parameter lets you specify a volume offset for each Zone. The default volume setting of all Zones is 0 dB.
- ▶ **PAN:** This parameter allows you to place each Zone independently within the stereo panorama.
- ▶ **TUNE:** This parameter lets you change the tuning of a Zone within a range of +/- 36 semitones.

Note that the last three parameters are mainly intended for a non-destructive correction of Samples which deviate in volume, panorama position, or tuning. They work in relation to the identically named parameters of the **SOURCE** and **AMPLIFIER** modules. If you want to modulate these parameters on a per-Zone basis, read about **ZONE ENVELOPES** in section 15.7.

14.3.1 Editing Parameters in the Status Bar

In order to view and change the parameters of a Zone, first select it in the Zone grid of the **MAPPING EDITOR** by clicking on it. All parameters of the currently selected Zone will now be displayed in the status bar above the Zone grid. You can change a parameter by clicking on its value and dragging your mouse upwards or downwards. While this is the only way to change the volume, pan and tune parameters of a Zone, there are several alternate ways to adjust its keyboard range, velocity range, or root key.

14.3.2 Editing Parameters Graphically

You can change the keyboard and velocity range of a Zone, as well as its root key, graphically within the Zone grid of the **MAPPING EDITOR**:

- ▶ Clicking into a Zone and moving the mouse horizontally will move the whole Zone across the keyboard. Using the left and right cursor keys while holding Ctrl (Command on Macs) will move the currently selected Zone(s) across the keyboard.
- ▶ Clicking on the left or right border of a Zone (the mouse cursor will change when it's right on the border) and dragging it horizontally, thereby changing the horizontal size of the Zone, will change that Zone's keyboard range. Using the left and right cursor keys while holding Shift and Ctrl (Command on Macs) will adjust the high key limit of the selected Zone's key range.
- ▶ Clicking on the upper or lower border of a Zone and dragging it vertically will change this Zone's velocity range. Using the up and down cursor keys while holding Ctrl (Command on Macs) will move the velocity range of the currently selected Zone(s) by two velocity steps; holding Shift and Ctrl will change their upper velocity limits.
- ▶ Clicking on the yellow key on the keyboard below the Zone grid and dragging it horizontally will change the Zone's root key.
- ▶ Ctrl-clicking and dragging while your mouse is on the left or right border of a Zone will create a Zone crossfade. This function will be explained below.
- ▶ Alt-clicking and dragging will open a "rubber band" zoom frame; when you release the mouse button, the contents inside the selection frame will zoom in to fill the whole pane. To zoom out again, just Alt-click somewhere on the grid.

You can select multiple Zones by clicking on them while holding the Shift key, or clicking on an empty space of the grid and dragging the mouse to



If multiple Zones overlap and you can't reach one that's hidden behind another, try holding the Ctrl key (Command on Macs) while clicking inside them repeatedly; this will cycle through all Zones you're pointing at.

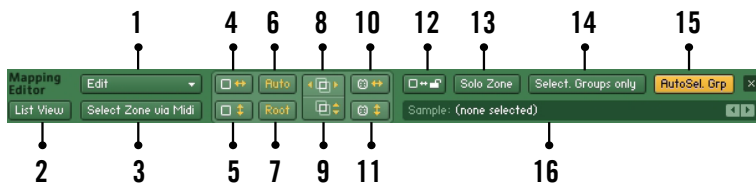
open a “rubber band” selection (when you hold Shift, you can open the selection frame at any point, also on Zones). By using the cursor keys while holding Shift, you can add adjacent Zones to your current selection. This way, you can use the described methods to move or modify the Zones in unison; the status bar, however, will only show values that are identical across all selected Zones when multiple Zones are selected.

14.3.3 Editing Parameters via MIDI

A third alternative that lets you change the keyboard and velocity ranges of a Zone in an intuitive way is using your MIDI keyboard. After you've selected a Zone in the Zone grid of the Mapping Editor, enable one of the buttons depicted with a small MIDI jack and a double arrow in the control strip, or both. The button with a horizontal arrow lets you change the keyboard range, the one with a vertical arrow lets you change the velocity range. Now, play two keys on your keyboard; it doesn't matter whether you play them at the same time or in succession. Depending which of the two buttons you have enabled, KONTAKT will use the note numbers and the velocity of both notes as endpoints for the Zone's new keyboard and/or velocity range.

14.4 Control Strip

The control strip is located at the top of the MAPPING EDITOR and consists of two rows of controls. This is where you can find most utility functions for managing and editing your Zones.



The Control Strip of the Mapping Editor provides a number of options and utility functions.

Let's take a look at the elements of the control strip:

1. **EDIT menu:** This button opens a drop-down menu with utility functions that operate on all currently selected Zones, such as clipboard operations, functions for assigning Zones to Groups, and batch processes. You can find a thorough explanation of all entries in this menu in the next section of this chapter.
2. **LIST VIEW:** This button switches the Zone grid to an alternate view mode that displays all Groups and their contained Zones in a hierarchical list structure at the left side. This mode is especially handy when you're working with lots of Zones that overlap in large areas, as Zones that are hidden behind others can be difficult to select and edit in the normal, flat view. The downside of the list view is that it doesn't convey any information about the velocity ranges; the only way to modify these is by editing them numerically in the status bar after you have selected a Zone. Just like the default view, the list view can be moved around with the scrollbars and zoomed with either the zoom buttons or by clicking and dragging a "rubber band" zoom frame while holding the Alt key.



When you're in list view, you can expand or collapse all Groups at once by holding Shift when you click on an expand/collapse button.

3. **SELECT ZONE VIA MIDI:** If this button is enabled, any incoming MIDI note will automatically select any Zone(s) that match its note number and velocity. The function works similarly to the **SELECT BY MIDI** feature of the **GROUP EDITOR**.
4. **AUTO-SPREAD ZONE KEY RANGES:** This function automatically fills “holes” in your key mapping by successively extending the key range of each selected Zone to both sides until it “touches” its neighbors. The algorithm ignores the root keys of the selected Zones; it simply uses the current key range as a starting point for extension. If you want the root keys to be accounted for, use the **AUTO-SPREAD KEY RANGES VIA ROOT KEY** function instead. The **AUTO-SPREAD ZONE KEY RANGES** function is also available in the **EDIT** menu.
5. **AUTO-SPREAD VELOCITY RANGES:** This function works similarly to **AUTO-SPREAD ZONE KEY RANGES**, but operates on the velocity range of each selected Zone instead of the key range. This function is also available in the **EDIT** menu.
6. **AUTO-MAP SELECTED:** When you click on this button, the **AUTO-MAPPING** feature will change the parameters and placement of each selected Zone according to information it has derived from its Sample's filename. This function is also available in the **EDIT** menu. The **AUTO-MAPPING** feature is explained in detail in the previous section of this chapter.
7. **AUTO-SPREAD KEY RANGES VIA ROOT KEY:** This function works similarly to the **AUTO-SPREAD ZONE KEY RANGES** command; however, it aims for the smallest possible maximum transposition that can occur in each Zone by accounting for the root keys and trying to keep them in the center of their respective Zone. This function is also available in the **EDIT** menu.

8. **RESOLVE OVERLAPPING KEY RANGES:** This function eliminates key range overlaps between the selected Zones by successively shrinking the key range of each Zone until it doesn't overlap its neighbor anymore. It aims for optimal utilization of root keys (and consequently, the smallest possible amount of transposition). This function is also available in the **EDIT** menu and via the keyboard shortcut **Ctrl-R** (**Cmd-R** on Macs).
9. **RESOLVE OVERLAPPING VELOCITY RANGES:** This function works similarly to the **RESOLVE OVERLAPPING KEY RANGES** command, but operates on the velocity ranges of the selected Zones. It's also available in the **EDIT** menu and via the keyboard shortcut **Shift-Ctrl-R** (**Shift-Cmd-R** on Macs).
10. **SET KEY RANGE VIA MIDI:** If this button is enabled and a Zone is selected, **KONTAKT** will use the next two incoming MIDI notes as the endpoints of a new key range for the selected Zone. This function is described in the previous section.
11. **SET VELOCITY RANGE VIA MIDI:** If this button is enabled and a Zone is selected, **KONTAKT** will use the velocities of the next two incoming MIDI notes as the endpoints of a new velocity range for the selected Zone. This function is described in the previous section.
12. **LOCK ZONES:** When this button is enabled, the key and velocity ranges of all Zones will be protected from being changed graphically inside the Zone grid. This can be handy when you're doing editing tasks that require you to switch between Zones a lot, and want to avoid accidentally moving one of them or changing its key or velocity ranges.
13. **SOLO ZONE:** This button will mute all Zones in your Instrument except of the currently selected one(s). Once activated, the solo function will follow your selection, so you can quickly check out the contents of specific Zones acoustically.

14. **SELECT. GROUPS ONLY:** When this button is activated, the **MAPPING EDITOR** will only show Zones that belong to the currently selected Group. To help you keep the overview, other Zones will be displayed dimly in the background, but won't be able for selection or editing.
15. **AUTOSEL. GRP:** When this button is enabled, the Group selection will follow your Zone selection. In other words, selecting a Zone will automatically select the respective Group to which it belongs in the **GROUP EDITOR**.
16. **SAMPLE FIELD:** This text field displays the filename of the Sample that's assigned to the currently selected Zone. When you hover the mouse pointer over this field, **KONTAKT** will additionally display the full path to the Sample file. Using the arrow buttons on the right side of the field, you can assign a new Sample to the selected Zone; the buttons will switch to the previous or next Sample within the folder of the current one.

14.5 Edit Menu

This drop-down menu contains utility functions that operate on your currently selected Zones. In addition to clipboard commands and functions that allow you to re-assign Zones to different Groups, it also contains a range of batch functions that are designed to operate on multiple Zones, as well as options that affect the display and editing behavior of the **MAPPING EDITOR**. Let's have a look at what you can find in the **EDIT** menu, from top to bottom:

Cut Zone(s): Moves the selected Zones to the clipboard for later use, removing them from the Zone grid in the process. Using the clipboard, you can move Zones from one Instrument to another, even across different KONTAKT instances.

Copy Zone(s): Copies the selected Zones to the clipboard.

Duplicate Zone(s): Creates identical copies of the selected Zones. These copies will be placed on top of the originals and will be selected after the process, so you can move them to a different place right away if you wish. The keyboard shortcut for this function is Ctrl-D (Cmd-D on Macs).

Paste Zone(s): Inserts the contents of the Zone clipboard into the MAPPING EDITOR. The Zones will appear in the same place they were cut or copied from.

Delete Zone(s): Removes the selected Zones from the MAPPING EDITOR.

Select all Zones: Selects all Zones in your Instrument, including those in other Groups than the currently selected one, even if the SELECT. GROUPS ONLY button is enabled.

Deselect all Zones: Clears all active Zone selections, if any.

Move Zone(s) to New Empty Group: Creates a new Group with default settings and re-assigns all currently selected Zones to it. Use this function if you want to separate a number of Zones from your current Group and use them to build a new Group from scratch.

Move Zone(s) to New Clone Group: Creates a new Group that replicates the settings of the Group to which the first selected Zone is assigned, then re-assigns all currently selected Zones to it. This process won't change the functionality of your Instrument, as the new Group will behave exactly as

the old one did; however, it allows you to change parameters of the new Group separately from the original Group.

Move to Existing Group: This entry opens a sub-menu that contains a list of all Groups in your current Instrument; by selecting one of them, all currently selected Zones will be moved to this Group.

Move Each Zone to Its Own Group (Empty): This function works similarly to the *Move Zone(s) to New Empty Group* command, but instead of creating a single Group and moving all selected Zones into it, it will create a separate, empty Group for each Zone.

Move Each Zone to Its Own Group (Clone): This function works similarly to the *Move Zone(s) to New Clone Group* command, but will create a separate Group for each Zone, which replicates the settings of the original Group.

Batch Tools: This entry opens a sub-menu with utility functions designed to operate on multiple Zones. Its contents will be described in the next section of this chapter.

The following seven entries are options that affect the operation of the MAPPING EDITOR. You can toggle them by choosing them from the menu; if an option is currently active, this is indicated with a small diamond icon next to it.

Auto Move Root Key: When enabled, moving a Zone will move its root key along with it. This way, the pitch of the Zone will stay the same when it's being moved.

Show Sample Names: If enabled, the filenames of the assigned Samples will be displayed within the rectangles that represent each Zone in the Zone grid. Note that the name will be hidden when a Zone rectangle is too small; if you'd still like to see it, try zooming in until the name appears.

Map Mode: These five settings affect how the MAPPING EDITOR will behave when you drag multiple Samples from the BROWSER into the Zone grid:

- ▶ *Chromatic:* This is the default setting. The MAPPING EDITOR will create adjacent Zones across both black and white keys, with the vertical mouse position adjusting the size of each Zone.
- ▶ *White Keys Only:* New Zones will be assigned to single, adjacent white keys.
- ▶ *Black Keys Only:* New Zones will be assigned to single, adjacent black keys.
- ▶ *Snap to White Keys:* This mode works similarly to *Chromatic*, but the MAPPING EDITOR will place the low key of each Zone on a white key.
- ▶ *Snap to Black Keys:* The low key of each Zone will be placed on a black key.

Auto Map Selected: Changes the parameters of each selected Zone using the current AUTO-MAPPING settings. The AUTO-MAPPING feature is described in detail in section 14.2.

Auto Map – Setup: Opens the setup dialog that lets you identify the tokens of Sample filenames for later AUTO-MAPPING.

Auto-Spread Zone Key Ranges, Auto-Spread Key Ranges via Root Keys, Auto-Spread Velocity Ranges, Resolve Overlapping Key Ranges, Resolve Overlapping Velocity Ranges: These entries replicate the functions of the corresponding buttons which you can find in the control strip; they are explained in detail in the previous section of this chapter.

14.6 Batch Tools

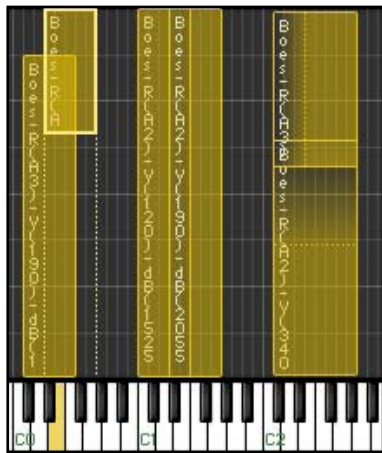
You can find these tools in the *Batch Tools* submenu of the EDIT menu. In addition to functions that place root keys in relation to the respective Zone borders, the menu includes several utility operations that let you create crossfades between Zones, which needs a brief introduction.

When you create Sample sets of tonal instruments that don't include a Sample for each note, the notes that haven't been sampled need to derive their signal from the Samples of nearby notes. This is usually done by transposing these “native” Samples upwards or downwards. This method has a downside – the necessary resampling process can “skew” the sound character of your instrument, especially when transposition over a wider note range is required. Consequentially, this means that two consecutive notes on a scale which happen to cross the “border” between two Zones, and thus are both transposed versions of different Samples, can sound dissimilar.

The same problem can arise with velocity switched Sample sets; suppose you're using four Samples per note, each assigned to one of four equally large velocity ranges. Especially when you're sampling an acoustic instrument, it can easily happen that two consecutive notes with only marginally different velocity values still happen to fall into two different velocity ranges, thus resulting in noticeably different timbres.

Crossfades provide a way to counteract these effects. The basic idea is that overlapping your Zones and creating a crossfade between them, thus

making them blend into each other within the overlapping parts, will mask the difference in sound for notes that fall “between” them.



Crossfades are being depicted with colored gradients.

Consider this example: You're sampling an instrument in minor thirds and have just sampled D and F. You create two Zones out of the Samples and extend them a major second to both sides. Now, Zone 1 covers the key range between C and E, with its root key being D. Zone 2 has its root key on F and covers the key range between D# and G. Notice that the Zones overlap on D# and E, where both will be transposed. Now you create a key crossfade on both Zones; as a result, D# and E notes will play a blend of

both Zones, with the D Zone's Sample being predominant on D# notes, and the F Zone's Sample being predominant on E notes. Of course, this method works just as well with larger sampling intervals. Just make sure that your Zones overlap in ranges you'd like to be crossfaded, whether in key (horizontal) or velocity (vertical) direction.

With this knowledge, let's get back to the contents of the *Batch Tools* sub-menu:

Auto-Apply X-Fades (Key): Creates crossfades between all selected Zones whose key ranges overlap to some extent. Active crossfades will be indicated with a shaded area between Zones; if this makes your Zone grid look too cluttered, try zooming in or switching into LIST VIEW.

Auto-Apply X-Fades (Velocity): Creates crossfades between all selected Zones whose velocity ranges overlap to some extent.

Remove X-Fades (Key): Removes all key range crossfades from the selected Zones, if any, which reverts them to normal overlapped Zones.

Remove X-Fades (Velocity): Removes all velocity range crossfades from the selected Zones, if any.

Move Root Key(s) to Lower Border: Moves the root key of each selected Zone to the lowest note in the key range.

Move Root Key(s) to Center: Moves the root key of each selected Zone to the center of the Zone's key range.

Move Root Key(s) to Upper Border: Moves the root key of each selected Zone to the highest note in the key range.



You can manually create crossfades by Ctrl-clicking and dragging the left or right border of a Zone.

15 The Wave Editor

In the previous chapters of this manual, we explained how you can use KONTAKT to turn Sample files on your hard disk into playable Instruments. A subject we have yet to touch, though, is the question in which ways KONTAKT allows you to do anything on the Sample level itself – building Zones, Groups and Instruments out of ready-made Samples is fine by itself, but if you want to really get into creative sound design, you'll sooner or later want a tool that lets you work directly on the waveform of your audio material. As you might have guessed already, the WAVE EDITOR is this tool. Let's have a look at what you can do with it:

- ▶ View and audition Samples. This sounds trivial, but it's sometimes helpful to listen to a Sample in its “raw”, untransposed form instead of playing it via the keyboard right away. Also, there are some problems that that can be hard to spot by listening alone, such as DC bias, inaccurate Sample starts, or excessively long silence at the end of your Samples; such issues are easy to notice when you're looking at a graphic representation of your waveform.
- ▶ Create and edit loops. Ever since digital sampling became feasible, sound creators have used looping as a means to render the maximum playable note length independent from the actual sample length. In the days of sampling libraries that routinely exceed the 10 GB mark, this might not be the predominant reason for looping Samples anymore; KONTAKT's looping facilities go far beyond the traditional concepts, though, and open up a whole range of creative sound design applications.

- ▶ **Slice Zones.** Slicing is a method that lets you deconstruct drum and percussion loops or musical phrases into their rhythmic “atoms” and trigger these either from the outside or using an internal sequencer. This makes it possible to change the tempo of a drum loop or phrase without the sonic artifacts associated with conventional time-stretching algorithms. It also allows you to reconstruct your loops into entirely new patterns and process their elements separately. As slicing your Zones provides KONTAKT with information about their rhythmic structure, you can also align most selection and processing operations to the rhythm pattern by making them snap to Slice markers.
- ▶ **Create and edit ZONE ENVELOPES.** Just like you can use envelope generators as a source for parameter modulation on the Group level, KONTAKT also provides envelopes that operate on separate Zones. The most striking aspect of ZONE ENVELOPES, apart from the added flexibility, is that you can edit them right on top of the Sample waveform; this makes it possible to create precise automation curves in perfect sync to your audio material.
- ▶ **Perform destructive Sample editing.** KONTAKT offers a range of operations that modify your Samples permanently on the hard disk; this is useful for editing tasks that prepare your Samples for smooth operation within KONTAKT, such as clean editing of start and end positions, normalizing, fades, or removal of DC bias.

The WAVE EDITOR will appear in the Instrument Edit RACK when you click on the WAVE EDITOR button at the top, just below the INSTRUMENT HEADER. Usually, you'll want to open the MAPPING EDITOR along with it, as the WAVE EDITOR always displays the content of the currently selected Zone; this way,

you can easily switch between the Samples in your Instrument by selecting Zones in the MAPPING EDITOR. Double-clicking inside a Zone in the MAPPING EDITOR will open the WAVE EDITOR with this Zone right away.



The Wave Editor panel. In its lower half, the Sample Loop tab has been selected, which lets you create and edit loop regions.

The WAVE EDITOR's interface panel is divided into five sections:

- At its top, a horizontal tool bar provides common utility functions and playback controls.
- Below that, a status bar displays various aspects of your current Zone, such as its start and end positions, in numeric form. These readouts make it possible to edit with sample accuracy.

- ▶ The largest space is taken up by the waveform view, which contains the Sample waveform and allows graphical editing of various position-related parameters. At the top of the waveform view, you'll notice a time line that informs you about the currently displayed time region and scale of the display. If you don't see a waveform in this section, select a Zone in the MAPPING EDITOR first.
- ▶ At the bottom of the editor, four tabs provide access to function sets, which relate to the various tasks you can perform in the WAVE EDITOR: creating and editing loops, synchronizing sliced Zones to your song tempo, creating and editing ZONE ENVELOPES, and editing your Sample destructively.
- ▶ Next to the tab section, a GRID panel allows you to define a number of markers at rhythmically relevant points across your Zone; we'll refer to this process as "slicing". Slicing your drum loops or phrases opens up a range of possibilities for changing their speed and patterns, and can be used to align most editing operations to rhythmical values of your material.

Before we get to the more sophisticated facilities that the WAVE EDITOR has to offer, let's stick to the basics and take a closer look at the utility sections, starting at the top.

15.1 Tool Bar

The topmost row of buttons in the **WAVE EDITOR** pane provides various navigation functions that affect which part of the Sample is currently being displayed, a set of playback controls, and menus that contain selection options and utility commands.



The tool bar of the Wave Editor is always visible and provides a number of options and utility functions.

From left to right, here's what the elements do:

1. **SIZE** (only visible in external window): If you have opened the **WAVE EDITOR** within an external window by clicking the arrow next to the **WAVE EDITOR** button at the top of the **RACK**, this drop-down menu lets you choose between three predefined window sizes.
2. **MAGNIFY TOOL**: This is a toggle button. When it's enabled, clicking and dragging your mouse in the waveform view will open a zoom frame; when you release the button, the area within the selection frame will be horizontally zoomed in so that it fills the entire view. Just clicking somewhere within the waveform view will zoom out again. You can obtain the exact same behavior by holding the **ALT** key while performing the same mouse actions inside the waveform view.

3. **JUMP TO ZONE START:** When you click on this button, the waveform view will jump to the start marker of your Zone (which may or may not coincide with the actual beginning of the Sample data).
4. **JUMP TO LOOP START:** Clicking on this button will center the waveform view on the start point of the currently selected loop region.
5. **ZOOM ON LOOP:** Zooms the waveform view so that the currently selected loop region fills the entire view.
6. **JUMP TO LOOP END:** This button will center the end point of the currently selected loop region in the waveform view.
7. **JUMP TO ZONE END:** When you click on this button, the waveform view will jump to the end marker of your Zone.
8. **SNAP:** This drop-down menu contains two toggle options, which affect whether KONTAKT will automatically adjust (“snap”) the start and end positions of your loop regions to match certain features of your waveform, which can be helpful in finding inaudible loops and avoid clicking. *Snap Loop to Zero Crossing* will snap the start and end points of your loops to positions at which your waveform crosses the zero line and matches the direction of the respective other point; *Snap Loop to Value Crossing* will snap start and end points to the nearest position where the waveform value and direction matches the value at the respective other point. You can only choose one of these options, or none; the currently active one is indicated with a small diamond icon next to it. Note that when you choose a snap option, KONTAKT won't change your loop right away; you'll have to move both the start and end point of your loop manually in order to make them snap to the selected features. How to do this will be explained in section 15.5.

9. **CMD (Command):** This drop-down menu contains utility functions that adjust your loops automatically in various ways; the available operations will be explained below.
10. **STOP:** This button stops Sample playback.
11. **LOOP:** When this toggle button is enabled, the **PLAY** button next to it will play your currently selected loop in repetition. Note that only the section between the start and end points of your loop is played, not the initial portion of the Zone before the loop; therefore, the playback result will be different from what you will hear when you trigger the Zone with a note.
12. **PLAY:** Clicking on this button will either play your Zone once (if the **LOOP** button next to it is inactive), or the currently selected loop region (if the **LOOP** button is enabled).
13. **AUTO PRE-LISTEN:** When this button is enabled, KONTAKT will play any region as soon as you select or change it; depending on which tab is selected, this works with loop regions, Slices, or edit selections.
14. **EXT. EDITOR:** When you click on this button, the current Sample will be opened within your favorite external Sample editor. This requires that you have set the **EXTERNAL WAVE EDITOR** option on the *Handling* tab of the **OPTIONS DIALOG** beforehand. Note that while your external editor is running, KONTAKT will freeze and not respond to any input; as soon as you quit your external editor, KONTAKT will examine the Sample on your hard disk for changes and reload it if required.
- 15.

NEW

In previous versions of KONTAKT, using an external wave editor was the only option to perform destructive editing on your Sample. KONTAKT 3, on the other hand, includes its own set of destructive editing tools. You can find these on the Sample Editor tab at the bottom of the Wave Editor.

Command Menu

This drop-down menu appears when you click on the CMD button in the tool bar. It contains various functions that operate on the loops of either your current Zone, or all loops of the currently selected Zones. Note that some options are only visible when you have selected an active loop on the *Sample Loop* tab.

Let's have a look at what each command does:

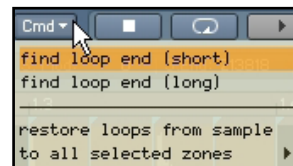
Find Loop End (short) (only visible when a loop region is selected): Attempts to find a well-working end point for the selected loop region automatically, but will only look for it in the vicinity of your current end point, thereby keeping your loop at roughly the same length.

Find Loop End (long) (only visible when a loop is selected): Attempts to determine an optimal end point for the selected loop region. In contrast to the previous entry, this function can increase the length of your loop by a significant amount if the detection algorithm deems a more distant position an optimal candidate for a new end point.

Restore Loops From Sample: Some audio file formats, such as WAV and AIFF, can optionally carry metadata that specifies one or more loop regions. When you choose this function, KONTAKT will look for this data in the Sample file and, if it finds any, use it for creating loops.

The following functions can be found below the *To All Selected Zones* sub-menu. As the name suggests, these functions operate on all Zones that you have currently selected in the MAPPING EDITOR, not just the currently displayed one.

Copy Current Zone's Loop Setting: Copies the loop settings of the currently visible Sample to all selected Zones.



The Cmd menu of the tool bar contains utility functions. Most of them affect the loop regions in your Zone(s).

Restore Loops From Samples: Attempts to retrieve and use loop data from the Samples of all selected Zones. This function works like the similarly named function explained above, but acts upon multiple Zones.

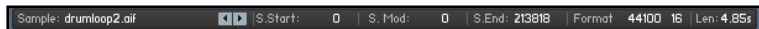
Adjust Loop Starts +/- 1: This nudges the start points of any loop regions in all selected Zones forward or backward by one sample value. This function is meant for correcting loops that were incorrectly imported; some editors and samplers use different offsets than KONTAKT for saving their loop points, which results in loops being off by one or more sample values when you import them.

Adjust Loop Ends +/- 1: This function works like the previous one, but acts upon the loop end points.

DC Removal: This function will detect and remove any DC bias from the Samples of all selected Zones. DC bias appears as a constant offset between the sample values and the zero line. While it's inaudible, it can reduce your headroom and cause problems at mixdown. It's also a possible side effect of a few signal processing and resampling functions found in sample editors, so it's generally a good idea to execute this function on your Samples once before you proceed with further editing. Note though that it's a destructive function, which will alter the Sample data on your hard disk.

15.2 Status Bar

The status bar is located below the tool bar and contains the filename of the Sample that's assigned to your current Zone, as well as a number of numeric values.



The status bar of the Wave Editor displays various details of your Sample and your currently selected loop region, if any.

It serves as a precise position monitor for various editing operations that take place in the waveform view. You can adjust editable values either by clicking on them and moving your mouse up or down, or by double-clicking on them and entering a new value. From left to right, the status bar consists of these elements:

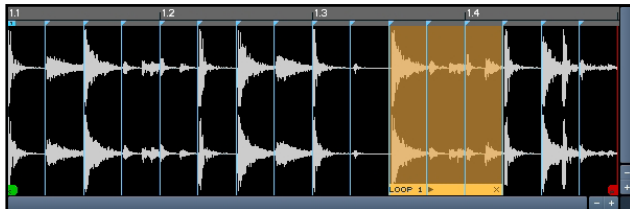
- ▶ **SAMPLE:** This is the filename (without extension) of the Sample that's assigned to the currently selected Zone. Hovering your mouse over the name will display the full path to this file. Using the left and right arrow buttons at the right side of the field, you can switch to the previous or next Sample file in the same folder as the current one. This will assign a new Sample to the currently selected Zone, so this field works in the same way as the identically named one in the **MAPPING EDITOR**.
- ▶ **S. START (Sample Start):** The position of your Zone's start marker, indicated in sample values. Moving the start marker will change the position from which the Sample will be played when the respective

Zone is being triggered; you can change it either by dragging the vertical green line in the waveform view, or by adjusting this value as described above.

- ▶ **S. MOD (Sample Start Modulation Range):** This value indicates the maximum amount by which the Zone start position can be modulated forth and back. For instance, if this range covers two seconds to both sides of the Start position, modulation assignments can change the Start position by two seconds at most. The modulation range is indicated graphically in the waveform view with a green line at the top, which extends horizontally to both sides of the Zone start marker to the earliest and latest start position attainable through modulation. You can change this value by clicking on it and dragging your mouse up or down.
- ▶ **S. END (Sample End):** The position of your Zone's end marker. All playback will stop at this position, and any material beyond the marker will be ignored. You can change this position either by dragging the vertical red line in the waveform view, or by adjusting this value as described above.
- ▶ **FORMAT:** This readout indicates the sampling rate and bit depth at which your Sample was recorded. It's not adjustable.
- ▶ **LEN (Length):** The total length of your Sample. This value is not adjustable.
- ▶

15.3 Waveform View

The central element of the **WAVE EDITOR** is the waveform view in the middle of the panel. It displays a navigable, visual representation of your Sample and allows you to perform a number of editing functions in a direct and intuitive graphical way.



The waveform view is the main element of the Wave Editor. Here you can select edit regions, tweak loops, and edit Slice markers.

If you don't see a waveform when you open the **WAVE EDITOR**, remember that you first need to select a Zone in the **MAPPING EDITOR**. It's a good idea to keep the **MAPPING EDITOR** open as well when you're using the **WAVE EDITOR**, as this arrangement allows you to quickly switch between the Zones in your Instrument. When a Zone is selected, the waveform view will display the waveform of the assigned Sample, with each audio channel being drawn on a separate zero line. The time line at the top of the view indicates which portion of the Sample is currently being shown, and allows you to estimate the length of loops, Slices, and selections visually. In addition to the waveforms, the waveform view contains a variable number of additional items. Note that some of these, such as the loop regions, envelopes, or

Slice markers, pertain to features which will be explained in detail later in this chapter.

- ▶ The start position of your Zone is indicated with a green vertical line that ends in a flag at the bottom. Unless the Zone start position is being modulated, any playback of the current Zone will always start at this marker, and the Sample portion to the left of the marker is discarded. To change the position of the Zone marker, click on its green flag at the bottom and drag it horizontally, or adjust the S. START value in the status bar as explained in the previous section.
- ▶ The end position of your Zone is indicated with a red vertical line. It marks the position in your Sample where all playback will stop. Apart from that, you can handle it in the same way as the start marker.
- ▶ The range in which your Zone start position can be modulated back and forth is indicated with a horizontal green line above the Zone start marker. You can adjust this range by clicking on its numeric value in the status bar and dragging your mouse vertically.
- ▶ When the *Sample Loop* tab at the bottom of the editor is selected, loop regions will be highlighted, with the currently selected region being indicated with a brighter color and a small status bar at its bottom. Loop crossfades will show up as diagonal lines at the beginning of a loop section. When one of the other tabs is selected, the borders of your loop regions will be shown as vertical lines, with a horizontal, dashed line in between.
- ▶ When the GRID is activated, Slice markers will appear as vertical lines across your waveform. The first marker, which allows you to adjust the GRID offset, is marked with a small “1” at its top.

- ▶ If your GRID is in *Auto* mode, thereby aligning the Slice markers to peaks in your Sample, the threshold above which a peak will create a Slice marker is shown graphically with horizontal lines across the view.
- ▶ When the *Zone Envelope* tab is selected, the currently selected ZONE ENVELOPE will be displayed as a curve on top of the waveform. If your ZONE ENVELOPE contains a loop region, it will be highlighted. A vertical line indicates where clipboard contents will be inserted when you use the PASTE function.
- ▶ When you switch to the SAMPLE EDITOR tab, a vertical line indicates where clipboard contents will be inserted when you use the PASTE function.
- ▶ The Sync / Slice, Zone Envelopes, and Sample Editor tabs allow you to select contiguous regions of your Sample for editing; these selected regions will be highlighted.

Just like in other editors, you can move the portion of the content that's currently being displayed by clicking and dragging the horizontal and vertical scroll bars. The horizontal scroll bar allows you to move to a different time position of the Sample. The vertical scroll bar shifts the waveform of each channel up or down within its view region; when you have zoomed in vertically, this scroll bar allows you to view the signal at different parts of the level range.

There are different ways to zoom in and out of your waveform. Firstly, there's a noteworthy difference between zooming horizontally and vertically. Horizontal zooming works in the same way as in other editors: zooming in magnifies a region of the content (in this case, a specific time range) so

that it fills up the view, thereby displaying a greater level of detail, zooming out fits more content into the view. Vertical zooms in the waveform view, on the other hand, will always keep the zero line of each channel at its respective position, thus magnifying only the amplitude of each waveform. This makes it possible to see level changes that are too small to be noticed at a normal zoom level; by zooming in vertically, you can make out small sonic details, such as release trails, in regions that look like plain silence on a lower zoom level.

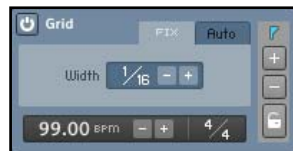
You can zoom in and out horizontally or vertically one level at a time by clicking the “+” and “-” buttons next to the scroll bars. Whenever you use this method to zoom vertically, the zero lines of each channel will be re-centered in their respective regions of the view. An alternative that’s often more convenient is to hold the Alt key while clicking and dragging your mouse in the view; this opens a “rubber band” selection frame. Once you release the mouse, the selected region will be zoomed in so it fills the whole view. To zoom out again, just click somewhere in the view. This method allows you to quickly and intuitively get a detail view of a specific region of your Sample. Enabling the button marked with a magnifying glass in the tool bar has the same effect as holding Alt.

15.4 Grid Panel

The GRID settings affect most other operations in the WAVE EDITOR, so we'll describe this feature before we get to the function tabs. You can find all settings that pertain to the GRID on the panel in the lower right corner of the WAVE EDITOR. When the GRID is inactive, this panel will be shaded.

In a nutshell, whenever you're working with Samples that contain rhythmic material or musical phrases, the GRID allows you to put a marker on every single hit or note that occurs within your Sample, thus splitting it up into a number of musically significant regions – we will refer to these regions as “Slices” from now on. Preparing your material in this way (“slicing”) has lots of advantages:

- ▶ By aligning loop regions with Slice markers, you can instantly create clean Sample loops that stay in perfect tempo.
- ▶ Using the functions on the *Sync / Slice* tab, you can adapt your drum loop or phrase to your song tempo in various ways.
- ▶ The mapping features of the *Sync / Slice* tab allow you to turn Slices into separate Zones, which makes it possible to trigger them separately; this way, you can instantly create a playable “drum kit” from any drum loop, and construct entirely new patterns out of its elements.
- ▶ When you're working with ZONE ENVELOPES, you can make their breakpoints snap to Slice markers. This way, it's easy to create rhythmical modulation curves.



The Grid Panel is the “command center” for slicing your Samples.

- When you've selected the `SAMPLE EDITOR` tab, the region selection for destructive operations will snap to Slice markers as well, which lets you perform operations like removing, exchanging, or reversing Slices in isolation very quickly.

In conclusion, it's almost always a good idea to activate and adjust the `GRID` panel first before doing any further editing on rhythmic material. To activate the `GRID`, click on the "power" button in the upper left corner of the `GRID` panel. The panel will light up, and a number of vertical markers will appear across your waveform view – if you can't see them, try zooming out horizontally. Each of these markers indicates the start of a Slice (and the end of the preceding one). You can always move these markers around by clicking on the small arrows at their top and dragging them horizontally, but in a lot of cases, you won't have to. That's because the `GRID` offers two modes that take care of the correct marker placement for you, namely *Fix* and *Auto*. You can switch between these modes by selecting one of the tabs in the `GRID` panel.

15.4.1 Fix Mode

The *Fix* mode is intended for slicing material that has a very precise timing; it's less ideally suited for sloppily played acoustic drums. Also, it helps to have your drum loop or phrase edited cleanly when you're planning to use the *Fix* mode, with the first beat being exactly at the beginning of the Sample, and no silence after the last beat; this is not a requirement, though. When you activate the GRID on a Zone for the first time, it's in *Fix* mode by default; if you're currently in *Auto* mode, you can switch to the *Fix* mode by clicking on the *Fix* tab of the GRID panel.

The idea behind the *Fix* mode is that your Sample will be split up into Slices of equal length, which is determined by the tempo of the loop, it's time signature, and a selectable note value.

To achieve a proper slicing, KONTAKT first needs to know the native tempo of your Sample. It tries to guess this by looking at its total length and assuming that it's a whole number of measures, played in a 4/4 meter. The resulting tempo is displayed in BPM at the bottom of the GRID panel. Note that this guess will only have a chance of success if your Zone has been cleanly edited, with the first hit or note being exactly at the beginning, and no excess space behind the last one. If you've made sure that this is the case, but the displayed tempo value is still incorrect, there can be two reasons for this:

First, your drum loop or phrase could be in a different meter than 4/4. This is easy to correct: next to the tempo readout, you'll notice a TIME SIGNATURE value. By clicking on either its numerator or its denominator and dragging your mouse up or down, you can specify a different meter.

If the **TIME SIGNATURE** value matches the meter of your loop, but the tempo is still incorrect, KONTAKT has estimated the number of bars in your Sample incorrectly. You can validate this by switching to the *Sync / Slice* tab and checking the value of the **ZONE LENGTH** field. For instance, if your Zone consists of one bar at a tempo of 50 BPM, KONTAKT might misinterpret it as two bars at 100 BPM. In such cases, the detected tempo will always be a multiple of the actual tempo, or vice versa. You can correct this by halving or doubling the tempo value with the “-” and “+” buttons next to it, respectively, until the correct tempo is indicated. Note that this will change the length as indicated in the **ZONE LENGTH** field on the *Sync / Slice* tab as well; the tempo and (musical) length values are invariably tied to each other.

Of course, if you already know the tempo of your Sample, you can skip all this and just enter the correct tempo value after double-clicking on the tempo value. Alternatively, click on the time line and drag your mouse horizontally; this will stretch or compress your Grid until it matches the tempo of your Sample. Provided that your Sample start is cleanly edited, adjusting the tempo directly will give you a perfectly set up **GRID** right away. If there's any silence at the beginning, the Slice makers will all land slightly before the actual hits; you can compensate this by moving the first Slice marker, labeled “1” at its top, which will move all following Slice markers along, thereby adding a time offset to your **GRID**.

Once the tempo of your Sample is set to the correct value and you have compensated any possible time offset, you'll notice that the Slice markers in the waveform view split your Sample into 16th notes. That's because the **GRID** uses the length of one 1/16th note as the default width for Slices.



The Slice width directly affects the usefulness

and quality of later tempo adaptations, either via the Beat Machine or by triggering the Zones from the outside. For instance, if your loop contains a constant 16th hi-hat groove and is sliced up into 8th notes, two hi-hat hits will end up in each Slice, with the duration between them remaining constant. This would create a shuffle effect with increasing tempo. While this trick can be useful in some cases, it's usually a better idea to use the smallest rhythmical division that occurs in your drum loop as the Slice width: 1/8 for a straight heavy rock beat, 1/16 for a more delicate funk groove, 1/12 for a ternary shuffle, and so on.

You can change this value by adjusting the control labeled **WIDTH** in the middle of the *Fix* tab. You can change both the numerator and the denominator of the displayed note value by clicking on it and dragging your mouse vertically; also, clicking on the **-/+** buttons next to the note value will halve or double the denominator, thereby increasing or decreasing the size of your Slices.

Once you're done with all required adjustments and made sure that the Slice markers are well-aligned with your beat, you might want to remove or add Slice markers to accommodate pauses or additional ghost notes outside of the **GRID**, or manually correct the position of some Slice markers. These actions will be described after the next section.

15.4.2 Auto Mode

The *Fix* mode of the **GRID** works well for exact and predictable beats or phrases, possibly of an electronic origin, that follow a fixed pattern in tempo and articulation. It's less practical with irregular beats or loops that were recorded live and played by a drummer with less than perfect timing: in such cases, most Slice markers that were placed in *Fix* mode will land slightly before or after the hits they were meant for, and would need careful manual tweaking to be corrected. This makes the *Auto* mode the better choice for such material. You can switch over to this mode by clicking on the **AUTO** tab at the top of the **GRID** panel.

In *Auto* mode, **KONTAKT** detects transients in the waveform of your Sample and creates Slice markers at these positions. For instance, each bass drum and snare hit in a typical rock groove will be clearly visible as a level peak in its waveform; intermediate hi-hat hits will be visible as smaller peaks. By



The *Auto* Mode detects peaks in your Sample and uses these for slicing.

using the attack phases of these peaks as Slice positions, KONTAKT can split these elements into Slices automatically. All you have to do is telling KONTAKT the level above which a transient shall be considered for slicing; this level threshold is the most important parameter of the *Auto* mode.

When you switch the GRID into *Auto* mode, you'll notice two purple, horizontal lines that appear at the top and bottom of your waveform view. By moving the horizontal slider on the *Auto* tab, these lines will change their position; they indicate the peak detection threshold graphically. Any peaks in your waveform that cross these lines will result in a Slice marker being placed at their respective position. As an example, reconsider the straight rock groove mentioned above: adjusting the threshold so that only the strong bass drum and snare hits cross the threshold will create large Slices, possibly at the length of 1/4 and 1/8 notes. Slowly lowering the threshold will gradually add more Slices, until all hi-hat hits and ghost notes will be marked separately.

When you're using this function frequently, you'll sooner or later encounter a drum loop where no threshold setting seems to work just right: on higher settings, hits that you'd like to be included will be ignored, while lower settings will add too many unwanted bits to the GRID. There are two ways to deal with this problem: if a low threshold tends to add lots of very small slices (for instance, on snare flams), try increasing the parameter labeled MIN SLICE DURATION below the threshold fader. This will ignore all slices that would be shorter than the specified length. If this does not work, try to find a compromise threshold that covers most of the hits you'd like to be included, and then add or remove Slices manually as needed. This process will be explained in the next section.

Note that even if you're using the GRID in *Auto* mode, KONTAKT still needs to know the tempo of your Sample if you want to use one of the features for automatic synchronization. Therefore, the tempo control is still visible at the bottom of the GRID panel in *Auto* mode and might need manual adjustment as described in the previous section. In contrast to the *Fix* mode, though, it won't affect the position of your Slice markers; it's only important if you use the BEAT MACHINE or TIME MACHINE to adapt your Sample to a new tempo.

15.4.3 Editing Slices Manually

You can manually modify or delete any Slice, including those that were generated by KONTAKT, and add new Slice markers to your Sample. This allows you to fine-tune automatically generated Slices, or manually slice material that's not suitable for being processed automatically.

Note that whenever you move an existing Slice or add a new one, it will be automatically locked. While Slice markers that were created via the *Fix* or *Auto* mode will change their positions or disappear when you adjust the tempo or switch the GRID mode, locked markers will always remain at their absolute position within the Sample until you change their position or remove them manually. Locked markers will appear as gray vertical lines in the waveform view.

There are several ways in which you can engage in the slicing process.

- To move an existing Slice, click on the small triangle at the top of its marker in the waveform view, and drag it horizontally. If you need to change it with more precision, try zooming in on the waveform. The first Slice marker in your Sample, indicated with a small “1” flag at its

top, is special; when you move it, all following markers will move along by the same amount. This allows you to compensate silence at the beginning of your Sample.

- ▶ To remove a Slice from your Sample, enable the “-” button on the right side of the Grid panel, then click on the small triangle icons on top of the Slice markers that you’d like to remove from your Sample. Remember to disable the “-” button when you’re finished to avoid accidental deletions. Alternatively, you can remove a Slice marker by right-clicking on the triangle at its top.
- ▶ To add a new marker to your Sample, activate the “+” button on the right side of the Grid panel, then click in the waveform view wherever you’d like the new marker to be located. When you’re done, remember to deactivate the “+” button again. Alternatively, you can right-click anywhere in the narrow strip below the time line in order to create a marker at that position.
- ▶ Finally, if you want to toggle the “locked” status of a Slice marker manually, activate the lock icon on the right side of the Grid panel, then click on the small triangle on top of the marker(s) that you’d like to lock or unlock. To lock all slices at once, Alt-click on the lock icon. Remember that any unlocked Slice markers will be changed when you adjust the tempo or switch the GRID mode.

15.5 Sample Loop Tab

The functionality of the **WAVE EDITOR** is split across four tabs at the bottom of its panel. Any tab that you select changes the behavior of the wave editor and the details that are being shown in the waveform view to a certain amount; for instance, when you switch to the *Sample Loop* tab, KONTAKT will highlight all loop regions in your Sample; when you change to the *Zone Envelopes* tab, loop regions will merely be hinted at with vertical amber lines, but any selected **ZONE ENVELOPE** will appear as an orange curve on top of the waveform. In this section, we'll take a look at the *Sample Loop* tab.

First of all, a little semantics. In the context of sampling, the term “loop” is used for two different concepts, which are related, but should be distinguished anyway for sake of clarity:

- ▶ Technically, a loop is a contiguous region of a Sample that will be played back repeatedly; in a traditional forward loop, the playback position will jump to the start of this region whenever it reaches its end. In KONTAKT, loops can be played forward and backward alternately, or played only a specific number of times before playback will proceed as usual. When we refer to loops in the context of this section, we're talking about this technical concept.
- ▶ A more colloquial use of the term is to describe Samples that contain musical phrases (as opposed to single notes). Often, these Samples are pre-produced drum or percussion phrases (“drum loops”), which makes them useful as building blocks for rhythm parts. As the name

implies, these Samples are usually meant for being played in repetition in order to fill the required number of measures. This can be done by looping them in the sampler as described above; however, this is not a prerequisite. Many people prefer to trigger them inside their sequencer on each downbeat instead; this method has the added benefit of avoiding tempo drifts that can occur over time when a loop region doesn't match the length of a measure exactly.

Sample loops were common in the heyday of hardware samplers, when both disk space and sample RAM were sparse. This limitation made it all but impractical to capture notes of an instrument like a piano, which can have a natural decay time in the order of a minute, in their entirety. Instead, it was reasoned that the most critical part of an instrument sound is its attack phase; after that, most sustained instruments quickly settle to a predominantly periodic waveform of some sort. By using sample loops to keep these periodic parts sounding during the sustain phase, thereby artificially “stretching” the sound beyond the length of the actual sample data, sample creators overcame the space limitations.

With the advent of software sampling and hard disk streaming, this application of loops became a little less important. They're still being used in this way, but their predominant appeal nowadays is creative sound design. As you might guess, loops in KONTAKT are equally well-suited for both approaches; let's see how they work. To create and edit loops, first click on the *Loop Editor* tab at the bottom of the *WAVE EDITOR*.



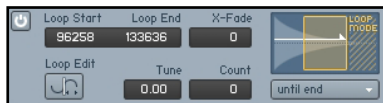
The Sample Loop tab of the Wave Editor is split into a number of loop selection buttons, and a parameter view for the currently selected loop region.

You'll notice a small "power button" icon to the left of the tab title. Clicking on this icon will globally activate or deactivate all loops of your Sample. When your Zone contains any active loop region, this button will be lit up.

KONTAKT allows you to define up to eight different loop regions per Zone. These "slots" are accessible via eight buttons, which are arranged in a 2x4 grid below the tab. When you start with an unlooped Zone, none of these buttons will be highlighted, which indicates that there are currently no active loop regions. Each selection button can take up one of 3 colors:

- ▶ Non-highlighted (dark blue): The respective loop region has either not been defined yet, or has been temporarily disabled.
- ▶ Yellow: The respective loop region is active and currently selected for editing. The region will also be highlighted with a bright amber color in the waveform view. Only one loop region can be selected for editing at any time.
- ▶ Light blue: The respective loop region is active, but not currently selected.

Clicking on one of these buttons will select the respective loop region for editing; if it's not active or has not been defined yet, it will be activated in the process. When you select a loop region, KONTAKT will display its parameters within the edit panel next to the selection buttons, and highlight the region in the waveform view. You can instantly create a loop region by right-clicking into the waveform view and dragging your mouse horizontally. This will replace your currently selected loop region, or, if none is selected, define the first one. You can change the start and end positions of a loop region graphically by clicking on its left or right border, respectively, and dragging it horizontally. Clicking inside a region and dragging it allows you to move loop regions without changing their size. You can view and change these and all other parameters of a loop region numerically within the edit panel.



The detail view allows you to adjust the start and end positions of your loop regions numerically with sample value accuracy.

To change any value, either click on it and move your mouse vertically, or double-click on it and enter a new value. Let's have a look at each parameter of the edit panel:

POWER BUTTON: Indicates whether the current loop region is active. When you select a loop region for editing, it will automatically be enabled. To disable (and de-select) a region, click on this button. Note that this applies to the power button in the edit panel of the selected loop region; the

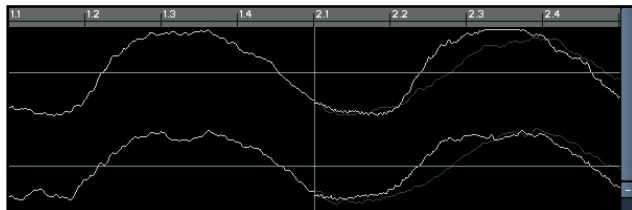
power button next to the tab title will globally activate or deactivate all loop regions.

LOOP START: The start position of the loop region within your Sample, displayed in sample values.

LOOP END: The end position of the loop region within your Sample, displayed in sample values.

X-FADE: To mask imperfect loop points, KONTAKT can fade the end of the loop region into its beginning. This value adjusts the length of this crossfade in milliseconds. KONTAKT will indicate a loop crossfade in the waveform view with a diagonal line on the left side of a loop region.

LOOP EDIT: When activated, KONTAKT will switch the waveform view to an alternate display mode that allows you to adjust your loop points in a very intuitive way.



The loop edit view lets you find an optimal loop point in a very intuitive way.

The loop edit view is split vertically; the left side will show the waveform just before the loop end point, the right side will show the waveform just after the loop start point. In other words, the boundary in the center depicts the transition that will occur at the loop point. In addition, the

original progression of the waveform after the end point is shown in a dim gray in the right part of the view, which allows you to assess how close the transition matches the unlooped waveform. You can move your loop start and end by clicking in the right or left part of the view, respectively, and dragging the mouse horizontally. Alternatively, you can adjust the numerical values within the edit panel in the usual way. While you change the positions, observe the transition in the center of the view; the more it looks like a continuous waveform, the cleaner your loop will turn out to be. To return to the normal waveform view, just click the **LOOP EDIT** button again.

TUNE: This control allows you to change the pitch of Sample loops independently from the rest of your Zone. Note that the detuning will affect all playback passes after the first loop jump; in other words, KONTAKT will play the region at its normal pitch once until the playback position reaches the end marker of the loop, then the specified pitch will come into effect for the duration of the loop.

COUNT: This value specifies how many times the loop region will be repeated before KONTAKT proceeds to play the rest of the Sample. A value of zero will loop the region indefinitely, which means that playback will never reach any following Sample material and loop regions.

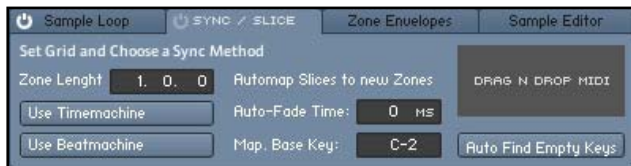
LOOP MODE: This drop-down menu lets you choose between several different loop characteristics. In addition to the displayed entry, the selected behavior is depicted with an illustration above the menu. KONTAKT provides the following loop behaviors:

- ▶ *Until End*: KONTAKT will play the loop in a forward direction. The loop will keep playing during your amplitude envelope's release phase, if any.
- ▶ *Until End <->*: KONTAKT will play the loop in alternating forward and backward directions ("ping-pong loop"). The loop will keep playing during the release phase of your sound.
- ▶ *Until Release*: KONTAKT will play the loop in a forward direction as long as the key is being held. When it's released, it will resume normal playback of the Sample, starting from the current playback position.
- ▶ *Until Release <->*: Like *Until Release*, but with an alternating forward and backward playback direction during the loop.
- ▶ *One Shot*: If the first loop region of your Sample is set to this mode, KONTAKT will ignore all other active loop regions and play the Sample in its entirety when it's triggered, without stopping at note-off events. This is useful for drum samples that should always play to their end, regardless of the actual trigger note length. Note that this works only if you're not using a volume envelope on your Group; otherwise, the release phase will still fade the Zone out as soon as the key is released.

If the GRID is active, all changes to the start and end points, whether they take place graphically within the waveform view or numerically within the edit panel, will snap to the nearest Slice marker; this makes creating exact loop regions within rhythmic material very easy. For a thorough description of the GRID feature, refer to the previous section of this chapter.

15.6 Sync / Slice Tab

In the section about the GRID panel, we mentioned that slicing your drum or percussion loop with the GRID allows you to synchronize its playback speed to your song tempo in a number of different ways, or map the resulting Slices to your keyboard, which lets you trigger the elements of a drum loop or a phrase at your own tempo and in your own pattern. The launch pad for all these features is the *Sync / Slice* tab in the lower part of the WAVE EDITOR. Note that an active GRID that's adjusted to match your Sample is a prerequisite for most of these functions to work; if you want to synchronize or rearrange any rhythmic material, you should therefore always set up the Grid first, then proceed to use the functions on the *Sync / Slice* tab. Section 15.4 of this chapter explains how to activate and adjust the GRID.



The Sync / Slice tab provides everything you need to synchronize your sliced Samples to your song tempo.

The *Sync / Slice* tab provides four different approaches to make your Sample independent from its original tempo or pattern: you can feed your slices to the BEAT MACHINE, time-stretch your Sample with the TIME MACHINE, or map your Slices to the keyboard in a manual or automated fashion. Let's have a look at the advantages and peculiarities of each approach.

15.6.1 Using the Beat Machine

The **BEAT MACHINE**, which is one of the playback modes provided by KONTAKT's **SOURCE MODULE**, plays all Slices of your Zone in succession via an internal sequencer. This retains the original pattern of your drum loop or phrase, but allows you to adapt it to your song's tempo, or freely change the playback pitch of the Slices. To use this feature, make sure your **GRID** is correctly set up, and enable the **USE BEAT MACHINE** button on the *Sync / Slice* tab. Depending on the contents of the Group to which your current Zone belongs, one of two things will happen:

- ▶ If the current Zone is the only one in your Group, KONTAKT will switch the **SOURCE MODULE** of this Group into **BEAT MACHINE** mode.
- ▶ If there are any other Zones in your Group, KONTAKT will move the current Zone into its own Group first and then switch that Group's **SOURCE MODULE** into **BEAT MACHINE** Mode. This reassignment is necessary to avoid disrupting the playback of other Zones which cannot be triggered correctly by the **BEAT MACHINE**.

Once the Source Module that plays your Zone is in **BEAT MACHINE** mode, any key to which the Zone is assigned will trigger the tempo-synchronized playback of all Slices in succession. When you look at the **SPEED** knob of your Group's **SOURCE MODULE**, you will notice that it displays the keyword *Zone* instead of the usual numeric value. This indicates that it uses the **Zone Length** value (as displayed on the left side of the *Sync / Slice* tab) to determine at which speed it has to play the Slices so that the phrase will span the same length at your song tempo. This is the same mechanism that allows you to select a note value from the drop-down menu of any time-related control in order to synchronize it, and in fact, the special *Zone*

keyword appears among the usual note values in the drop-down menu of the **SPEED** control if you use the **BEAT MACHINE** via the **SYNC / SLICE** tab. Of course, nothing prevents you from selecting a different note value from the drop-down menu, or selecting the *Default* entry in order to adjust the playback speed independently from your tempo. You can always return to synchronized mode by selecting *Zone* again.

Note that all changes to the slicing of your Sample will be immediately picked up by the **BEAT MACHINE**, which lets you hear any modifications instantly. For example, you might notice during playback that some ghost notes are not properly marked in your Sample and are thus being played back with incorrect timing. Just add the respective Slice markers, as explained within the **GRID** section of this chapter – the **BEAT MACHINE** will adopt your changes right away, even during playback.

15.6.2 Using the Time Machine

As an alternative to the **BEAT MACHINE**, **KONTAKT** can also use the more conventional time-stretching algorithms of the **TIME MACHINE** mode to sync your Sample to the tempo of your song. While using the **BEAT MACHINE** or one of the Slice mapping features explained below is usually the better choice for percussive material, the **TIME MACHINE** can be very useful for tonal phrases.

As the **TIME MACHINE** treats your Sample as one contiguous region with no regard to Slices, you don't necessarily need to have the **GRID** activated in order to use this feature. However, **KONTAKT** still needs to know the length (and therefore, the tempo) of your Sample in order to determine how far it has to be stretched or compressed in time to match your current tempo.

Therefore, you need to specify the correct (rhythmical) length of your Zone in the **ZONE LENGTH** field of the *Sync / Slice* tab. If you don't know the length, you can alternatively activate the **GRID** and specify the tempo of your Sample instead. KONTAKT needs to know only one of these values, as the respective other one can be derived. Note that specifying the **ZONE LENGTH** value explicitly will only change the tempo correctly if the end marker of your Zone coincides with the actual Sample end; otherwise, it will change the end marker position to match the length that you entered. In such cases, you should therefore adjust the tempo in the **GRID** panel instead.

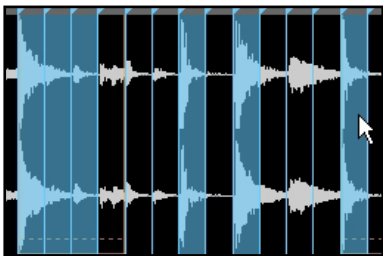
Once the **ZONE LENGTH** field displays the correct length, enable the **USE TIME MACHINE** button on the left side of the *Sync / Slice* tab. If your Zone is not the only one in its Group, KONTAKT will move it into a new Group first to avoid disrupting the playback of other Zones. The **SOURCE MODULE** of the Group that contains your Zone will then be put into **TIME MACHINE** mode.

Just like the **BEAT MACHINE**, the **TIME MACHINE** will have its **SPEED** control set to the special *Zone* value by default when you're using it via the *Sync / Slice* tab. This means that your Sample will be played back at your host or **MASTERKONTROL** tempo right away when you trigger it. The meaning of the *Zone* keyword and how you can override it to freely adjust the playback speed is explained in the previous section of this chapter.

15.6.3 Mapping Slices Manually

Once you have placed Slice markers across your Sample via the GRID, you might want to trigger these Slices directly with your keyboard or from within your sequencer. The manual mapping feature of the *Sync / Slice* tab lets you do just that.

Provided that you have correctly set up the GRID for your Sample and selected the *Sync / Slice* tab, you can select Slices that you want to map to your keyboard simply by clicking between two Slice markers in the waveform view. KONTAKT will highlight any selected Slice in blue. To add more Slices to your selection, either hold the Ctrl key (Command on Macs) and click on further Slices one at a time, or hold the Shift key and click on a second Slice to select all Slices in between. For instance, if you want to map all Slices of your Sample to keys, click on the first one, then hold Shift and click on the last one; this will select all Slices and highlight the entire Sample.



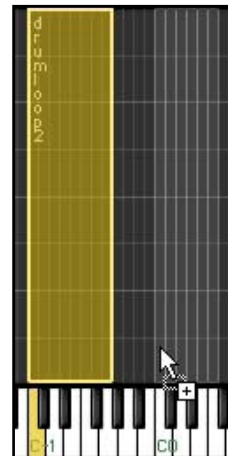
You can select Slices for manual mapping by clicking onto them. Holding the Ctrl key (Command on Macs) allows you to select multiple, non-adjacent Slices.

Once you're happy with your Slice selection, make sure the **MAPPING EDITOR** is visible above the **WAVE EDITOR**. Now, click on one of the selected Slices, and drag it over into the Zone grid of the **MAPPING EDITOR**; all other selected Slices will move along. You'll notice that while keeping your mouse button pressed, KONTAKT will highlight a range of keys in the Zone grid, starting from the key below your mouse pointer. This allows you to position the Slices you've selected on the keyboard. The process works exactly as if you're dragging a number of Samples from the **BROWSER** into the **MAPPING EDITOR** – the horizontal mouse position determines the key at which KONTAKT will begin to map the Slices, while the vertical mouse position within the Zone grid determines the number of adjacent keys each Slice will be assigned to.

If you agree with the displayed assignment pattern, release your mouse button. KONTAKT will now create a new Zone for each Slice in your selection, and place all Zones in succession in the order in which they appear in your Sample. Each of the new Zones will reference the original Sample from which it was created, with its Sample start and end markers set to the boundaries of the original Slice. You can now trigger these Zones from your keyboard or within your sequencer, create new patterns with them, or adjust the playback or effect parameters of each Zone separately via **ZONE ENVELOPES**.

15.6.4 Mapping Slices Automatically

While mapping your Slices manually in the way described above works well if you want to place only specific Slices or a range of Slices onto keys, the more frequent case will probably be that you'd like to put all Slices on



While you keep your mouse button depressed, KONTAKT will indicate where it would place the new Zones on the keyboard.

adjacent keys and then trigger them from within your sequencer. Of course, you can do this manually as well; there's a better way, though. The auto mapping feature of the *Sync / Slice* tab allows you to automatically map all Slices of your Sample to adjacent keys. What's more important, it can generate a MIDI sequence for you that, when placed in your sequencer, will trigger all Slices in exactly the same pattern as they occur in your Sample. As your sequencer will obviously play MIDI sequences at the song tempo, the pattern will always be in sync, thereby replicating the functionality of the BEAT MACHINE. The feature leaves more room for creativity, though: once you have imported the MIDI sequence into your arrangement, you can go ahead and make modifications to this pattern. Of course, you can also discard it altogether and build your own patterns from scratch, thereby reassembling your drum loop or phrase in an infinite number of ways. Before the auto mapping can take place, you may need to adjust some parameters first that affect where the new Zones will be placed and how KONTAKT will handle the Zone creation process. You can find these parameters in the middle and on the right side of the *Sync / Slice* tab.



The auto-mapping parameters determine how new Zones will be created and where they will be placed on the keyboard.

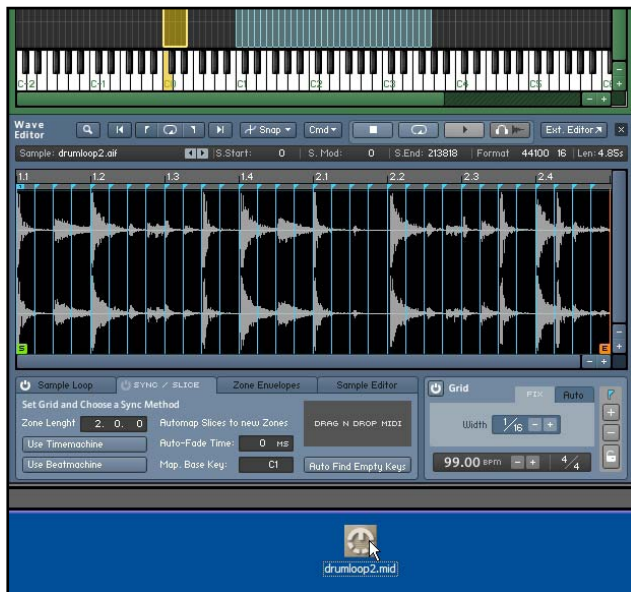
AUTO-FADE TIME: KONTAKT can optionally create volume fade envelopes for each Zone that it creates from your Slices. When you set this parameter to a value other than zero, each new Zone will contain a volume ZONE ENVELOPE

which fades the respective Slice in and out; the specified value determines the fade-out time, the fade-in time will be shorter than that. Creating auto-fades for your Slices can give smoother results when you change the playback speed of the pattern. The specifics of how **ZONE ENVELOPES** work will be explained in the next section of this chapter.

MAPPING BASE KEY: This is the first key at which KONTAKT will start mapping the Slices.

AUTO FIND EMPTY KEYS: If enabled, KONTAKT will leave out any keys that trigger existing Zones when it maps Slices to the keyboard. This avoids mapping Slices to the same keys as other Zones.

After adjusting these parameters, you can go ahead and start the auto mapping process. You'll notice a rectangular field labeled **DRAG'N'DROP MIDI** at the right side of the *Sync / Slice* tab. From here, you can “pick up” the MIDI sequence that corresponds to your Slice pattern; just click inside the field and drag its content onto either your desktop (which will create a standard MIDI file) or into the arrangement window of your MIDI sequencer (which will insert the MIDI sequence right into your arrangement). If you're sure you won't need the MIDI file, you can also just click on the field instead; this will only create the mapped Zones.



Clicking into the “Drag’n’drop MIDI” field and dragging its content onto your desktop will create a standard MIDI file.

At the same time, KONTAKT will create the required Zones, map them to the keyboard, and put them into a new Group. If you’ve placed the MIDI sequence on the correct track of your arrangement – it has to be sent to the MIDI channel of your current KONTAKT Instrument – and play it back,

you should hear your drum loop or phrase played back at your song tempo. If you want, you can now proceed with modifying this MIDI sequence. Of course, should you decide to delete the sequence, the generated Slice mapping will stay in place, so you can build your own patterns from scratch as well. To get rid of the mapping, just delete the Group that was created in the process.

15.7 Zone Envelopes

Envelopes are a common source for modulating parameters in synthesizers and samplers; they provide a flexible way to create finely adjustable and repeatable modulation patterns. In KONTAKT, envelopes are usually being generated by envelope generators, which act as signal sources for modulation assignments. These can be added to Group-level modules, which means that any conventional envelope affects all Zones in a Group in the same way. There are cases, however, when modulating parameters on a per-Zone basis would be really helpful; ZONE ENVELOPES make this possible. What's more, since they are directly tied to the Sample of the Zone in which they appear, you can edit them on top of the waveform view; this allows you to intuitively create all kinds of modulations in perfect sync with the Sample content.

To create and edit ZONE ENVELOPES, click on the *Zone Envelopes* tab at the bottom of the WAVE EDITOR.



From left to right, the Zone Envelopes tab provides selection and delete functions, assignment buttons, edit tools, and utility functions.

15.7.1 Assigning and Selecting Envelopes

Similarly to normal Group-level modulation assignments, the first step to create a ZONE ENVELOPE is to tell KONTAKT which parameter you'd like to modulate. For this purpose, the ZONE ENVELOPES tab provides three assignment buttons, labeled VOLUME, PAN, and ADD. These are located in the middle of the panel. Each of these buttons creates a new ZONE ENVELOPE for a specific parameter and selects it for display; if an envelope for the selected parameter already exists, an info message will appear instead.

The upper two buttons create envelopes for the playback volume and the panorama position, respectively; as these are parameters that you will probably want to modulate frequently, they are provided here for quick access. The third button, labeled ADD:, allows you to create ZONE ENVELOPES for any parameter that appears on a panel of a Group-level module. Whenever you click on the control of such a parameter, the ADD: button will pick it up and display its name. By clicking on the ADD: button then, you can create a new ZONE ENVELOPE which modulates the chosen parameter. For instance, you might want to modulate the cutoff frequency of a filter that resides in the GROUP INSERT EFFECTS chain of your current

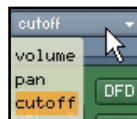


The upper two assignment buttons create a Zone Envelope for volume and panorama position, respectively; using the lower button, you can create a Zone Envelope for any Group-level parameter.

Group; just locate the CUTOFF knob on the filter panel (you may have to double-click the filter module in the chain if you don't see it) and click on it – you don't need to move it. The lowest assignment button on the *Zone Envelopes* tab of the WAVE EDITOR should now read ADD: CUTOFF. When you click on this button, a new cutoff envelope will appear as a straight horizontal line within the waveform view.

In theory, you can create a ZONE ENVELOPE for every Group-level parameter, all within one Zone. However, KONTAKT will only display one of your envelopes in the waveform view at any time. In order to select a ZONE ENVELOPE for viewing and editing, click on the drop-down menu button on the left side of the ZONE ENVELOPES tab, and choose an existing envelope from the menu.

If you want to get rid of an envelope, first select it for editing via the drop-down menu, then click on the DELETE button below. This will remove the envelope from the list and return the respective parameter to its unmodulated state.



The selection drop-down menu contains all Zone Envelopes of your current Zone. Selecting one will display it in the waveform view.

15.7.2 Adjusting Assignment Parameters

There are a few adjustable parameters that change the way in which the ZONE ENVELOPE's shape will affect the modulated parameter. For this purpose, each ZONE ENVELOPE that you create will add an entry to the MODULATION ROUTER of the module that contains its target parameter. You can jump to the corresponding assignment parameters of a currently selected ZONE ENVELOPE by clicking on the MODULATION QUICK-JUMP button that's located next to the assignment buttons on the *Zone Envelopes* tab.



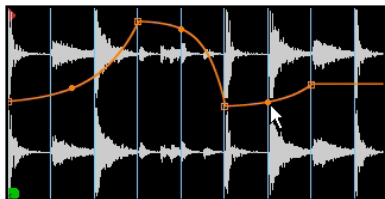
The assignment entry of a Zone Envelope looks and works similar to that of a normal Group-level assignment, but can only be created on the Zone Envelope tab.

A MODULATION ROUTER entry of a ZONE ENVELOPE looks and works exactly like one that belongs to a normal modulation assignment – it provides a modulation intensity slider, an INVERT button, a LAG control, and an optional MODULATION SHAPER. To find out what these controls do, refer to section 22.5 of this manual. In contrast to normal MODULATION ROUTER entries, though, entries that pertain to ZONE ENVELOPE assignments can't be created in the usual way of assigning other modulation sources; the only way to add them is implicitly by creating a ZONE ENVELOPE within the WAVE EDITOR.

15.7.3 Editing Envelopes

After you have created a new ZONE ENVELOPE, it will be selected right away and displayed within the waveform view of the WAVE EDITOR as an orange, horizontal line. ZONE ENVELOPES work similarly to flexible envelopes (see section 23.1.3 of this manual) in that they consist of a series of breakpoints, which are connected by either straight lines or curves. The minimum length of a ZONE ENVELOPE is predetermined by the length of your Sample, though. At the beginning of the envelope, you'll notice a small rectangle; this is the first breakpoint of your envelope. Click on this breakpoint and drag it up or down to change the envelope's initial level. To add a new breakpoint, right-click (Ctrl-click on Macs) somewhere within the waveform view. KONTAKT will connect the new breakpoint to its neighbors with straight lines. You can change each breakpoint's level

and position in time by clicking on it and dragging it around; the waveform display in the background provides visual feedback if you want to align it to features of your Sample. The envelope display will always keep in sync with the waveform; thus, zooming in and out of the waveform or scrolling the view, as described at the beginning of this chapter, will change the envelope view accordingly.



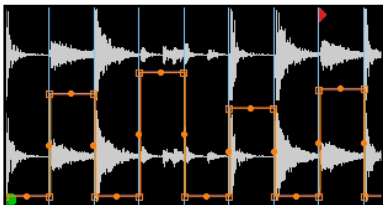
Zone Envelopes allow you to create arbitrarily complex modulation shapes.

In the middle of a segment between two breakpoints, you'll notice a small, filled circle. Clicking on this circle and dragging it up or down will change the curve shape of this segment. To remove a breakpoint from your envelope, right-click (Ctrl-click on Macs) on it.

If the **GRID** is active, all breakpoints will snap their position in time to the nearest **Slice** marker when you move them. This allows you to create rhythmically useful modulation patterns very quickly. Also, the **PENCIL TOOL** explained below allows you to create straight envelope lines for each **Slice**.

When you use this function in combination with the **BEAT MACHINE**, as explained in section 15.6.1, it opens up a whole range of possibilities

that were only possible in previous KONTAKT versions if you separated each Slice into its own Group: since straight lines, as created with the PENCIL TOOL, set the target parameter to a value that will remain constant over the duration of the Slice, you can easily adjust parameters for each Slice separately. As an example, suppose you're playing a sliced dub drum loop via the BEAT MACHINE and want to add reverb to a single snare hit. To accomplish this, add a reverb module to a free INSTRUMENT SEND EFFECTS slot first, then insert a SEND LEVELS module into the GROUP INSERT EFFECTS chain of the Group that contains your drum loop. Now, with the Sample being displayed in the WAVE EDITOR and the *Zone Envelopes* tab selected, click on the send level button in the panel of the SEND LEVELS module which corresponds to the reverb. The name of this send parameter should now appear in the ADD: button on the *Zone Envelopes* tab. Click on this button; a new envelope will appear in the waveform view. Now select the PENCIL TOOL and click inside the Slice of the snare hit that you'd like to process; a new "plateau" will be added to your envelope at this spot. Clicking and dragging it allows you to adjust the reverb level of this slice in isolation. With a little creative thinking, the possibilities of this approach are virtually boundless.



Using the Pencil Tool and/or the Randomize Env function, you can quickly change Group-level parameters for each Slice in isolation.

You can cut, copy, and paste regions of your ZONE ENVELOPE. For this purpose, the waveform view provides a selection feature and a paste cursor. When you click anywhere in the waveform view and drag your mouse horizontally, KONTAKT will highlight the selected region; you can change an existing selection by clicking and dragging one of its borders, or move it across the envelope by clicking inside it and dragging your mouse horizontally. To put the contents of a selected region into the clipboard, click on either CUT or COPY in the middle of the ZONE ENVELOPES tab – CUT will remove the selected region in the process, while COPY won't change your envelope. To insert the clipboard contents into your envelope, click on the PASTE button below; KONTAKT will insert the clipboard region at the position of your edit cursor, which is indicated with a vertical red line that you can position by clicking anywhere within the waveform view. This method also works across different envelopes.

15.7.4 Utility Functions

The right side of the **ZONE ENVELOPES** tab contains a number of utility functions that change the behavior of your currently selected **ZONE ENVELOPE** in various ways:

- ▶ **LOOP ENV:** When this button is enabled, you can define a loop region within your **ZONE ENVELOPE**. This feature works similarly to the loop sections of flexible envelopes, which are being described in section 23.1.3; in contrast to these, though, it does not need to be anchored to breakpoints. This aspect is rather important, as **KONTAKT** allows you to reproduce a loop region of your Zone within the envelope, which makes it possible to keep the Zone and its **ZONE ENVELOPE** in perfect sync during loops. Of course, you can just as well adjust your loop region freely and independently from any Zone loops; clicking and dragging one of its borders will resize it, and you can move it as a whole by clicking inside the region and dragging your mouse horizontally. Note that when you're using an envelope loop that doesn't match an identical loop region in your Sample, your envelope and the Sample will eventually drift out of synchronization.
- ▶ **RANDOMIZE ENV:** If you're working on a sliced Sample, this button will create a random step pattern which changes its value at each Slice marker; using this feature, you can quickly create rhythmic modulation patterns that resemble classic "sample and hold" modulations of synthesizers. Using the **PENCIL TOOL** described below, you can easily change the level of each step. Note that this function will overwrite your currently selected **ZONE ENVELOPE**.

- ▶ **GET PARAM FROM CUR. S. LOOP:** When you click on this button, KONTAKT will copy the start and end positions of the loop region that's currently selected on the *Sample Loop* tab and use them for your envelope's loop region. This is useful for getting your envelope in sync with a looped Sample.
- ▶ **ENV FOLLOWS PLAYBACK SPEED:** When this button is active, the selected **ZONE ENVELOPE** will always speed up or slow down in unison with your Sample. For instance, when you're playing your Sample an octave above its original pitch in **SAMPLER** or **DFD** mode, its playback speed will be doubled; enabling the **ENV FOLLOWS PLAYBACK SPEED** button ensures that the **ZONE ENVELOPE** will speed up accordingly, so that your Sample and its envelope always stay in sync. When this button is inactive, the envelope will always be processed at the original speed of the Sample.
- ▶ **PENCIL TOOL:** This button is located above the **CUT**, **COPY**, and **PASTE** buttons in the middle of the *Zone Envelopes* tab. It provides a tool that lets you create and edit straight lines between **Slice** markers. This way, the target parameter of your envelope will be set to a constant value during the length of the respective **Slice**. For example, you might want to adjust the volume of each **Slice** of a **BEAT MACHINE**-triggered drum loop separately. When the **PENCIL TOOL** button is enabled, clicking between any two **Slice** markers will create a straight horizontal line between them; you can change the level of these lines later by dragging them up or down with the **PENCIL TOOL**.

15.8 Sample Editor

Most of the available operations in the **WAVE EDITOR** work in a non-destructive way, which means that they affect only the playback of your Sample and don't change the actual Sample data on your hard disk. Therefore, they can be easily reversed if needed. This is not always what you'll want, though: for example, if your Sample starts with a region of excess silence, you might want to get rid of it permanently (instead of working around it by changing your Zone start markers). Similarly, if there's a DC bias in your Sample, there's no practical reason to keep it in there. For these cases, **KONTAKT** provides a built-in collection of destructive editing tools that allow you to cut, copy, and paste your material, create fades and regions of silence, reverse portions of your Sample, normalize its peak levels, or remove any DC bias. To access **KONTAKT**'s palette of destructive editing tools, click on the *Sample Editor* tab in the lower part of the **WAVE EDITOR**. If any other currently loaded Instruments use the Sample which you're just trying to edit, **KONTAKT** will ask you first which of these Instruments should adopt your changes, and which should keep the original version.



The Sample Editor tab provides several destructive editing functions, a numeric display for the region that's selected for editing, and Undo / Redo functions.

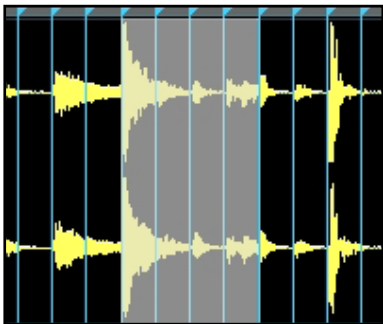
As you can see, the elements on this tab are split into three functional blocks, namely **EDIT**, **TRANSFORM**, and **SELECTION**. The **EDIT** tools let you remove and reorder regions of your sample, but leave the Sample data within these regions unaffected; the **TRANSFORM** tools process the actual Sample data, for instance by changing the level.

When the *Sample Editor* tab is selected, the behavior of the waveform view will depend on whether the **GRID** is active or not. If it's inactive, clicking into the waveform view will position a vertical marker at this location; this is the edit cursor, which indicates where the contents of the clipboard will be inserted when you select **PASTE**. Clicking on the waveform and dragging your mouse horizontally will highlight a contiguous region of your Sample; all **EDIT** and **TRANSFORM** commands will operate on this region. To change an existing selection, click on its left or right border and drag it horizontally; holding the Shift key while doing this allows you to make finer adjustments. The boundaries of the currently selected region will also be displayed numerically in the **SELECTION** panel of the *Sample Editor* tab; you can adjust any of these values directly by clicking on it and moving your mouse vertically, or by double-clicking on it and entering a new value.

If the **GRID** is active, the position of the edit cursor, as well as all selection boundaries, will snap to the nearest Slice markers. You can select a contiguous series of Slices by clicking into a Slice and moving your mouse horizontally. Changing the left or right border of the selection or moving it as a whole works as described above, but the selection will remain tied to the Slice markers.



If the Auto Pre-Listen button in the tool bar of the Wave Editor is enabled, KONTAKT will automatically play your selected region whenever you change it.



If your Grid is active, you can select whole Slices for editing.

While you're working on your Sample, KONTAKT will actually write out any changes to a backup copy, so your original file will be left untouched. KONTAKT will create the backup copy inside a folder named “__edited__”, which is located in your original Sample's location. Once you're finished with editing, your Instrument (and any other loaded Instruments that use this Sample and have been selected by you when you switched to the *Sample Editor* tab) will reference this backup copy instead, and you will hear your changes instantly. By saving your Instrument, you'll make the reference to the modified backup copy permanent; your original Sample will remain unaffected during the whole process, so other Instruments on your hard disk that use it will still work as expected.

Before we explain what each operation on the *Sample Editor* tab does, we should mention an important feature that will turn out to be rather helpful if things go wrong, namely the **UNDO** and **REDO** buttons on the right of the



The Undo and Redo buttons work similarly to the identical functions of the Rack in Instrument Edit mode.

tab. These work like the identical buttons in the Instrument Edit RACK header. Clicking on the curved arrow on the UNDO button (left) will reverse the effects of the last operation, thus reverting the waveform to its former state; clicking on the small down arrow on the same button will open a drop-down menu with a list of the most recent operations that lets you select to which point in the operation history you want to return. Note that the last entry of this list will always be *Restore Orig.*, which will undo all changes that took place since you switched to the *Sample Editor* tab, thus restoring the Sample reference in your Instrument to the original Sample again. If you don't do any further editing on the *Sample Editor* tab after this, the “__edited__” folder will be deleted when you quit KONTAKT. The REDO button to the right works similarly, but the other way around: it will restore any effects that you have just reversed with the UNDO button.

15.8.1 Edit Operations

CUT: Puts the currently selected region of your Sample into the Sample clipboard, removing it from the Sample in the process.

COPY: Leaves your Sample intact, but copies the selected region to the Sample clipboard for later use.

CROP: Removes all audio data outside the selection; in other words, the selected region will become your new Sample.

DELETE: Removes the selected region from the Sample, without putting it into the clipboard.

PASTE: Inserts the contents of the clipboard into your Sample. The insert location depends on whether a region is currently selected: if so, it will be replaced with the clipboard contents, which erases the previous contents

of the region and will change the overall length of your Sample in most cases. If no region is selected, the contents of the clipboard will be inserted at the location of the edit cursor; this location is indicated with a vertical blue line, which you can position by clicking into the waveform view.

Duplicate: Inserts a copy of the selected region right after the region.

15.8.2 Transform Operations

FADE IN: Creates a smooth fade in from silence that spans the selected region.

FADE OUT: Creates a smooth fade out into silence that spans the selected region.

SILENCE: Replaces the selected region with digital silence, i.e. a series of zero values.

REVERSE: Reverses the selected region, so that it plays backwards.

NORMALIZE: Amplifies the selected region to the greatest possible level without clipping. The **NORMALIZE** function analyzes your Sample region and applies a gain factor that makes it utilize the entire available dynamics range; in other words, after you've used this operation, the highest peak in the region will just hit the 0 dB mark.

DC REMOVAL: Detects and removes any DC bias from the selected Region. DC bias appears as a constant offset between the sample values and the zero line. While it's inaudible, it can reduce your headroom and cause problems at mixdown. Usually, you'll want to use this operation on your whole Sample.

16. The Script Editor

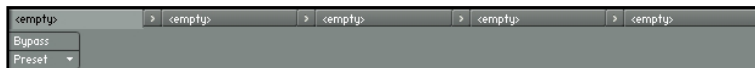
KONTAKT includes a powerful and flexible scripting language processor, which is designed to let third-party developers come up with custom and complex ways in which users can interact with their Instruments. Although KONTAKT's scripting language is easy enough to learn for anyone who has used a programming language before, a thorough reference would still go beyond the scope of this manual, so we've made it available as a separate PDF document that you'll find in the Documentation folder of your KONTAKT installation. In this section, we'll keep to the basics of loading and using Scripts within the `SCRIPT EDITOR`.

Since its initial inclusion with KONTAKT 2, the scripting language feature has attracted thousands of developers, so new and improved Scripts are being released on a regular basis. Please check the Native Instruments web site, where you'll find lots of Scripts and information on how to create and share your own.

There are some basic aspects of Scripts that you should be aware of, even if you'll only use pre-made Scripts. Scripts in KONTAKT work like small programs that hook into KONTAKT's way of processing notes, controller data, and user actions, enabling them to change Instrument parameters and MIDI data in a programmatic way. A very simple example would be a Script that alters incoming MIDI notes by transposing them up an octave, or creating a second voice that follows in octaves; more complex Scripts,

though, can provide anything from powerful sequencer environments to realistic simulations of human instrument articulation.

When you click on the **SCRIPT EDITOR** button, the Script module appears in its default state.

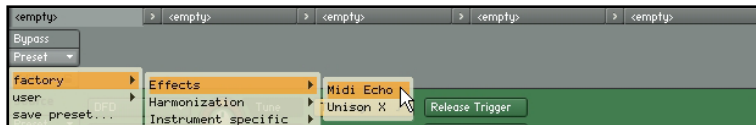


An empty Script Editor, waiting for a script to be loaded into slot 1.

At the top of the panel, you'll notice five tabs, each of them with an *empty* label. These are slots that can take up a Script each; if a Script changes any events, another script in a slot to its right will “see” the modified events. In other words, the five slots act as a chain of event filters. Below the slot tabs, there's an empty space; each script can provide its own user interface, which will appear here.

16.1 Loading a Script

To load a Script, click on the **PRESET** button. A drop-down menu will appear, allowing you to select an item from the preset scripts folder of your KONTAKT installation.



All Scripts that reside in the appropriate directories will appear in the Preset menu of the Script Editor.

After you've selected a Script, its user interface controls will appear in the space below the tabs. Most Scripts will work right away after loading; others might need you to do any meaningful adjustments first. You can always bypass a Script, thus temporarily deactivating it, by clicking on the **BYPASS** button in the upper left corner of the **SCRIPT EDITOR**.

Whenever you're using a script that provides its own controls, you can automate these like any other control of the KONTAKT user interface; select the *Auto* tab in the **BROWSER** and drag either a MIDI controller or a host controller ID onto the knob whose parameter you'd like to automate. For more information on how this works, refer to section 11.7 of this manual.

16.2 Saving Script Settings

Whenever you have made a setting that you particularly like, you can save the Script in its current state for later re-use. Just click on the **SCRIPT** button, then select the *Save Preset* command from the drop-down menu. A dialog will appear, asking you to enter a new filename for the Script. We don't recommend that you overwrite the original Script with your new settings, except if you want to change its default state for any later use. Note that you don't need to explicitly save your Script if its settings are unique to your current project; its state will be saved along with your session or Multi. Also, some more sophisticated Scripts provide a built-in facility for preset management within the Script's user interface.

16.3 Editing and Saving a Script

If you're into programming, you can browse and edit the source code of a Script via a built-in code editor. Click on the **EDIT** button in the lower left corner of the **SCRIPT EDITOR**; a text editor pane will open below the Script's user interface. Within this editor, you can make changes to the current Script, or write your own Script from scratch. Whenever you've made any changes, they won't affect the running Script right away; instead, the **APPLY** button in the upper right corner of the source code editor will light up to remind you that you'll have to commit the changes first. You do this by clicking the **APPLY** button; if the Script interpreter does not find any errors



Even if a thorough explanation of the scripting language is beyond the scope of this manual, here's a neat trick we don't want to keep back: you can turn any Script panel into a Performance View, thereby making it visible and accessible within the Rack, simply by adding the statement "make_perfview" in a new line somewhere between the lines "on init" and the following "end on", which can usually be found at the top of Scripts. After you click on the **Apply** button and return to the Multi Instrument view, the Script controls will appear below the Instrument Header in the Rack. You can read more about the Performance View feature in section 5.4 of this manual

in your Script, your changes will be made active. Keep in mind, though, that you still need to save your Script in order to make the changes permanent.16.4 Locking a Script

If you want to protect the source code of your Script to keep others from browsing and editing it, you can lock it with a password while the source code editor is visible. To do this, click on the LOCK WITH PASSWORD button in the upper left corner of the source editor, enter a password twice, and click on OK. Others can still use the script as it is, but the source code editor won't show up if they don't have the password.

Before you lock a Script, though, remember that there's a helpful and friendly community of fellow Script authors out there; locking your Scripts will keep them from finding and fixing bugs you might have missed or enhancing them with new features.

17. The Source Module

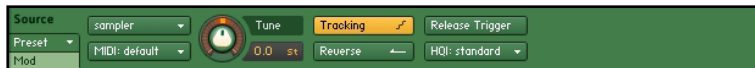
As its name suggests, the **SOURCE MODULE** is located at the very beginning of KONTAKT's signal flow and acts as the source of all audio signals. It provides access to the underlying sample playback engine, and as such can't be removed from an Instrument. It operates in one of six playback modes, all of which are optimized for handling different audio material:

- ▶ **SAMPLER**: This is a traditional sample playback engine that keeps all sample data in your computer's RAM.
- ▶ **DFD (Direct From Disk)**: This is a high-performance solution for streaming samples from disk in real-time.
- ▶ **TONE MACHINE**: In this mode, you can change the pitch and formants of your sounds independently from the playback speed.
- ▶ **TIME MACHINE** and **TIME MACHINE II**: These playback modes allow you to compress and stretch your Samples in real-time, while leaving their pitch unaffected.
- ▶ **BEAT MACHINE**: This mode handles rhythmic samples (such as drum loops) that have been "sliced", making them fit your song tempo.

The mode of operation can be switched via the drop-down menu in the upper left corner of the **SOURCE MODULE**'s control panel. Note that the **SOURCE MODULE** is located on the Group level, which means that each Group in your Instrument has its own **SOURCE MODULE**, and changes to the playback mode only affect Zones within the Group to which the respective module belongs.

Let's have a look at how each of the playback modes works and what controls it does provide.

17.1 Sampler



The Sampler mode provides traditional, interpolated playback of Samples from memory.

This is a “standard” digital sampler that stores sample data in system memory, reads it out from memory, and applies any required transposition by resampling the audio data in real-time. The `SAMPLER` module is very efficient and draws little power from the host CPU.

Most of the available parameters in this mode can be modulated. Remember that all adjustments you make will affect all Groups that are currently selected for editing in the `GROUP EDITOR`.

Sampler Controls

TUNE: Changes the playback pitch within one octave up or down. As this is a traditional sampler mode, changes to your pitch will always affect your playback tempo as well; if you want to adjust these parameters independently of each other, switch to one of the `TONE MACHINE` or `TIME MACHINE` modes. This control works in semitone steps when moved, but you can make finer adjustments by holding down the Shift key as you move the knob.**REVERSE:** Plays all Samples in the Group in reverse. Note

that when this button is activated, playback will start at the **END MARKER** of a Zone, so if there are a few seconds of silence at the end of a Zone, the sound will be delayed.

TRACKING: When enabled, the pitch of the Sample playback will be transposed along with the key position. If your Group contains Zones that are mapped across several keys and should be played tonally, **TRACKING** needs to be activated, or else all keys of the Zone will play at the same pitch. If you want to keep the pitch of a Sample constant across multiple keys or provide a separate Zone for each key (as it's the case with chromatically sampled Instruments), you can deactivate it.

MIDI: Sets the MIDI port and channel this Group will respond to. Use this only if you want different Groups respond to different MIDI channels, otherwise set the Instrument's MIDI channel in the **INSTRUMENT HEADER** and leave this setting at its *Default (Instrument)* value.

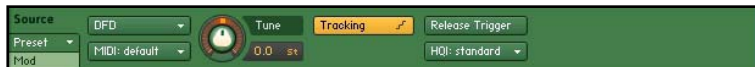
RELEASE TRIGGER: When activated, samples in this Group will be triggered when a MIDI note-off command is received (as opposed to responding to note-on commands as usual). This function provides the necessary means for creating release samples. With these, you can recreate the natural release sound of an instrument, such as the damper on a harpsichord or a reverb trail recorded in the instrument's natural environment, when a key is being released. Note that if your release sample has a loop, there's no way to tell **KONTAKT** to stop playing it from the outside (after all, that's what the note-off command was meant for in the first place), so you should make sure your Group has a volume envelope, or else it will keep playing indefinitely.

T (Time, only visible if RELEASE TRIGGER is activated): If you set this to a value other than 0, KONTAKT will count from that value backwards in millisecond intervals when it receives a note, then stop the timer and provide its current value as a modulation source when it receives the corresponding note-off value. This way, you can make your Instrument respond to note durations, for instance by reducing the volume of your release sample after longer notes in order to make it fit a Sample with a natural decay.

NOTE MONO (visible only if RELEASE TRIGGER is activated): This button affects how release samples will respond to note repetitions. When it's activated, playing a note repeatedly will cut off any previous release samples that are still sounding (if any), so that only one release sample will play at any time.

HQI (High Quality Interpolation): This drop-down menu allows you to choose from a list of 3 resampling algorithms of various quality. Only Samples that are played at a different note than their root key will need to be resampled. The *Standard* setting uses the algorithm of old KONTAKT versions, which offers a reasonably good resampling quality while being light on the CPU. The *High* and *Perfect* settings select high-quality resampling algorithms, which eliminate virtually all audible artifacts (especially when transposing upwards), but need more CPU resources. Note that while the CPU demand of the *Standard* setting is constant, the *High* and *Perfect* settings will use more CPU resources the further they need to transpose a Sample from its root key; therefore, if you play a Sample two octaves above its original pitch, they will generate a higher CPU load than if you play it a semitone higher.

17.2 DFD



The DFD mode streams Samples from your hard disk in real-time as they are triggered.

The DFD mode uses an advanced streaming engine, which allows you to play very large Sample sets in real-time without having to load all sample data into RAM. This is accomplished by loading only the beginnings of all Samples into RAM (where they can be accessed instantly) and, as soon as a Sample is being played, streaming its remainder from your hard disk. This method has a few caveats that you'll need to keep in mind when creating your own Instruments, but they're usually far outweighed by the possibility of playing Instruments whose Sample data is anything from "inconveniently large" to "several times bigger than the size of your computer's RAM".

The controls for the source module's DFD mode are identical to those of the standard **SAMPLER** mode, except that it doesn't offer a **REVERSE** button. All other differences are transparently handled by **KONTAKT**.

Here are a few things you should be aware of when using DFD:

- The maximum number of voices will most likely be lower compared to the **SAMPLER** module, as the latency and throughput of your hard disk will be a bottleneck for sampling performance. Therefore, you can optimize your overall voice count by putting only Groups and



You can optimize the performance of the DFD module to your system configuration by tweaking the settings on the DFD tab of the Options Dialog; these are explained in section 4.3.6 of this manual.

Instruments that access very large Samples into DFD mode, while keeping all others in SAMPLER mode.

- ▶ Do not try to use DFD mode with Samples that reside on a CD-ROM. Copy them to hard disk first.
- ▶ Although the DFD mode minimizes RAM usage in comparison to the Sampler mode, it still has a noticeable memory footprint, as it needs to pre-load the beginnings of all Samples into memory. KONTAKT can use up to 2 GB of your system memory for DFD buffers.
- ▶ You can switch between DFD and SAMPLER mode at any time. However, when switching from DFD to SAMPLER, there may be a slight pause, as the entire Sample set needs to be loaded into RAM.

17.3 Tone Machine



The Tone Machine mode lets you adjust the speed and pitch of your Samples independently.

The TONE MACHINE mode offers you unprecedented control of your Samples' pitches and formant frequencies, which can both be changed independently from the playback speed. It accomplishes this by processing your audio

signals with granular synthesis algorithms, and has tremendous potential for creative sound design, as well as lots of utilitarian applications.

When you switch your **SOURCE MODULE** from **SAMPLER** or **DFD** mode into this mode, it needs to analyze your sample material first, which can take some time if you have lots of samples in this Group. A progress bar will indicate the current status of this analysis.

Note that since the **TONE MACHINE** handles your audio data in small chunks of sample values called “grains”, all boundaries of Sample loop regions will be aligned to these chunks. In consequence, this can result in slightly inaccurate playback of loops.

Tone Machine Controls

TUNE: Changes the playback pitch within one octave up or down, without affecting the playback speed.

SMOOTH: In order to reduce artifacts during playback, **KONTAKT** will crossfade grains into each other. This control adjusts the shape of these very short crossfades. Higher values will result in a smoother pitch shift, but rhythmic material may lose definition and “punch”. Lower values are prone to cause a buzzing sound, but will keep transients intact.

SPEED: Changes the playback speed independently of the pitch. This value is displayed as a percentage of the original speed by default, so 200% doubles the playback speed, while 50% halves it. The control goes all the way down to 0%, which freezes the sound at its current playback position. The **SPEED** parameter can also be synchronized to your host or **MASTERKONTROL** tempo; in this mode, your samples will be stretched to match the length of a note value. To do this, click on the displayed unit of

the **SPEED** control and select a note value from the drop-down menu, then dial in a numerator for this value with the **SPEED** knob. To switch back to unsynchronized mode, just choose the *Default* entry from the drop-down menu.

FORMANT: This control shifts the formant frequencies, which are the parts of your signal's frequency content that decide its predominant timbral characteristics, independently of the pitch.

DC FILTER: The **TONE MACHINE** algorithm can impose a DC bias upon your waveform in certain cases, which reduces headroom and can cause distortions. This button enables a filter that eliminates this bias and re-centers your waveform around its origin. It's recommended that you leave this enabled.

LEGATO: If this button is activated and you play multiple notes in a legato fashion, **KONTAKT** will carry its current playback position over to each following note, rather than playing each Sample from the beginning.

TRACKING: If this button is activated, the playback pitch will depend on the notes that you play. When disabled, the pitch won't follow the keyboard.

MIDI CHANNEL: Sets the MIDI port and channel this Group will respond to. Change this only if you want different Groups respond to different MIDI channels, otherwise set the Instrument's MIDI channel in the **INSTRUMENT HEADER** and leave this setting to its *Default (Instrument)* value.

RELEASE TRIGGER: Allows samples in this Group to be triggered when a MIDI note-off command is received. This function and its additional parameters are covered by the description of the **SAMPLER** mode above.

17.4 Time Machine



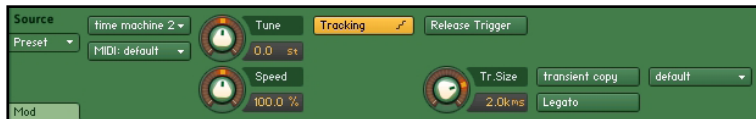
The Time Machine performs time-stretching of your Samples in real time.

The TIME MACHINE works similarly to the TONE MACHINE in that it uses granular synthesis to render pitch and playback speed of your samples independent of each other. It is optimized to alter the playback speed while leaving the pitch unaffected, thus providing a facility for real time time-stretching. Its controls are mostly identical to those of the TONE MACHINE as described above. In addition, it offers the following controls:

HI QUALITY: This button replaces the DC Filter button of the TONE MACHINE. When enabled, the TIME MACHINE will analyze the sample data in order to determine optimal grain boundaries for this material; disabling this will make the granular synthesizer work the same regardless of its source material. This especially affects playback quality at low speeds.

GRAIN: This control replaces the FORMANT control of the TONE MACHINE. It determines the grain size of the granular synthesizer. Since the grain size is not static in HI QUALITY mode, this control has little effect when you have enabled the button described above.

17.5 Time Machine II



The Time Machine II mode is optimized for high-quality time stretching, especially of percussive material.

This module works in a similar way as the TIME MACHINE, but uses enhanced algorithms that provide time stretching and pitch shifting of an excellent quality. Its controls are mostly identical to those of the TIME MACHINE, with the following exceptions:

TRANSIENT COPY: When this button is enabled, transients in your material – instantaneous level changes that occur in percussive sounds – will be preserved as accurately as possible. Therefore, this mode is recommended when you're working with drum loops or other percussive material.

TR. SIZE (Transient Size): When the TRANSIENT COPY function is enabled, this control adjusts the duration of transients that will be left untouched.

GRAIN SIZE: This drop-down menu allows you to choose from several grain sizes that are optimized for various types of source material. As the effects of various settings on your particular material is hard to predict, it's usually worth trying several settings until you've found the one that sounds best.

17.6 Beat Machine



The Beat Machine mode shouldn't be activated manually; it's better to Slice your Samples first in the Wave Editor and then activate it via the Use Beat Machine button on the Sync / Slice tab.

The **BEAT MACHINE** is a mode for tempo-synchronized playback of “sliced” Samples. In short, the slicing mechanism provides a way to change the playback speed of percussive audio material, such as drum loops, without the tendency to “slur” transients or introduce other artifacts that are common to other time-stretching methods. In contrast to these, though, slicing needs some prior human intervention, the idea being that you add markers to your Samples, which tell KONTAKT where their distinctive parts – such as the drums in a drum loop – are located. After you've created those markers, KONTAKT will be able to trigger these elements in time to your song with an internal sequencer. This sequencer is the **BEAT MACHINE**.

If the task of placing markers in your Samples, which is referred to as “slicing”, sounds daunting to you, don't worry. The intelligent slicing functions that you'll find in the **GRID** panel of the **WAVE EDITOR** will make this task as simple as possible, and of course, once you've sliced a Sample,

the slicing information will be saved along with the Instrument. What's more, there's lots of pre-sliced material available in the form of commercial loop libraries.

The process of slicing a Sample manually is described in detail in section 15.4 of this manual. Also, note that the *Sync / Slice* tab of the **WAVE EDITOR** includes a **USE BEAT MACHINE** button, which allows you to synchronize the Sample to your song tempo right away. In fact, you should always use the **USE BEAT MACHINE** function instead of switching your **SOURCE MODULE** into **BEAT MACHINE** mode explicitly. Please refer to sections 15.4 and 15.6 of the **WAVE EDITOR** chapter to learn how to slice your own Samples and use the **BEAT MACHINE** to play them back.

Beat Machine Controls

MIDI CHANNEL: Sets the MIDI port and channel this Group will respond to. Change this only if you want different Groups respond to different MIDI channels, otherwise set the Instrument's MIDI channel in the **INSTRUMENT HEADER** and leave this parameter at its *Default (Instrument)* value.

TUNE: Adjusts the pitch at which each Slice will be played back within one octave up or down.

SPEED: Adjusts the speed at which the Slice pattern will be played back. When you're using the **USE BEAT MACHINE** button on the *Sync / Slice* tab of the **WAVE EDITOR** to synchronize your sliced Samples, the readout of this control will display *Zone*, which means that the speed gets automatically synchronized to your host tempo. Read about this mechanism in section 15.6.1 of this manual. If you have activated the **BEAT MACHINE** mode manually, the speed will be displayed as a percentage of the pattern's

original speed, and can be synchronized manually by clicking on the displayed unit, then choosing a note value from the drop-down menu.

TRACKING: If this button is activated, the playback pitch will depend on the notes that you play. When disabled, the pitch won't follow the keyboard.

SL. ATK. (Slice Attack): Since slicing can occur at spots in your Sample that can cause clicks when played back in isolation, Slices are being crossfaded into each other instead of just played back in succession. This control adjusts the attack time of the crossfade envelopes. As large values can weaken your transients, you should generally adjust this control to the lowest possible value that just avoids clicking.

SL. RLS. (Slice Release): Adjusts the release time of the crossfade that occurs between Slices.

RELEASE TRIGGER: Allows samples in this Group to be triggered when a MIDI note-off command is received. This function and its additional parameters are covered by the description of the **SAMPLER** mode at the beginning of this chapter.

INTERNAL TRIGGER: This button is only included for backwards compatibility. Its function was used with slices that have been automatically mapped into Groups across the keyboard. As this function is now replicated with Zones in KONTAKT 3, you need this button only if using Instruments that have been saved in previous KONTAKT versions.

18. The Amplifier Module

The **AMPLIFIER MODULE** follows the **SOURCE MODULE** and the **GROUP INSERT EFFECTS** chain in the Group level of **KONTAKT**'s signal flow. Its purpose is to adjust the volume of the signal before it enters the Instrument level, place it in the stereo panorama, and optionally change the default output channel assignment and the channel routing that occurs between the Group and the Instrument level. A particularly vital task of the **AMPLIFIER MODULE** is brought about by combining it with modulation: this way, you can use volume envelopes, which are elementary in the creation of playable Instruments.



All signals generated by the Source Module of your Group will pass the Amplifier Module as well.

As it's a fundamental part of **KONTAKT**'s signal flow, the **AMPLIFIER MODULE** can't be removed from a Group, nor can you have more than one **AMPLIFIER MODULE** within a Group. All signals generated by the **SOURCE MODULE** in the Group will pass your **AMPLIFIER MODULE**.

These are the available controls:

VOLUME: Adjusts the overall level of all signals that originate from this Group.

PAN: If the Group is being routed to a stereo Output Channel, this control allows you to place the signal in the stereo panorama. Note that the **VOLUME** and **PAN** controls affect the playback of all Zones in your Group; if you want to adjust these parameters on a per-Zone basis, change them in the **MAPPING EDITOR** instead, or use **ZONE ENVELOPES**, which are described in section 15.7 of this manual.

CHANNEL ROUTING: Clicking this button will open a routing matrix below the panel, which allows you to change the channel assignment aspects of the connection between the Group and the Instrument level, as well as create special routing configurations for up-mixing or down-mixing your Group signal to a different channel configuration.



A routing configuration which keeps the channel order and assignment intact, but lowers the third and fourth channel by -12 dB in volume.

Each horizontal row of this table corresponds to a channel of the Group signal that's present at the input of the **AMPLIFIER MODULE**, as specified in the leftmost column. Each vertical column corresponds to an audio channel of

the output that you've selected for this Instrument in the INSTRUMENT HEADER. You can create a connection between an input and an output channel by clicking into the field that is crossed by the respective row and column. An existing connection will be indicated with a colored rectangle; left-click on it again to remove the connection.

For more complex routings that convert between different channel configurations, it's possible to send an input signal to multiple output channels, or to mix multiple input signals down to one output channel. You do this simply by creating more than one connection within a row (mix-up) or a column (mix-down). In such cases, it's often desirable to create connections with an intrinsic amplification or attenuation; for example, a common practice for mixing surround signals down to stereo is to fold the rear signal to the stereo channels at a lower volume. This can be accomplished in the CHANNEL ROUTING matrix by right-clicking into the fields of existing connections, which will change the level of this connection as indicated by the color of the rectangle. Repeated clicking will cycle through a number of preset levels, which are displayed with their respective colors at the bottom of the routing matrix.

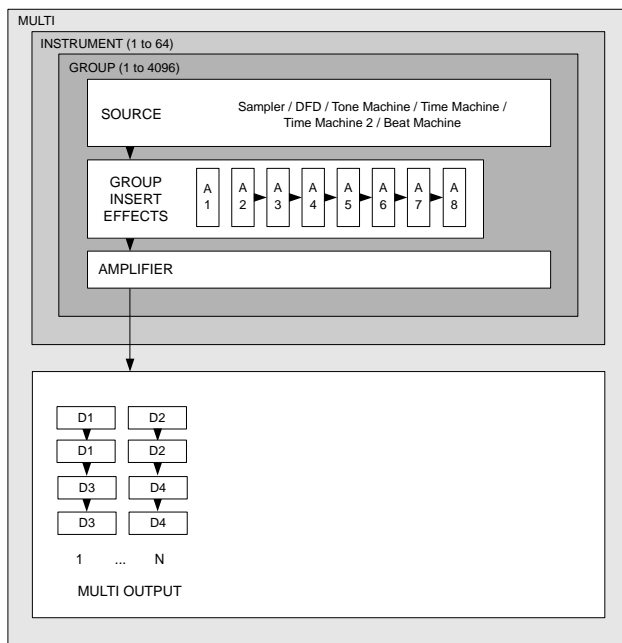
OUTPUT: This drop-down menu allows you to specify an alternate OUTPUT CHANNEL for this Group. Change this setting only if you want to route signals from different Groups to different outputs within the same Instrument, otherwise leave it to its *Default (Instrument)* setting and select the output channel for this Instrument in the INSTRUMENT HEADER.

Note that changing the output assignment in the AMPLIFIER MODULE panel will send the output signal from the respective Group directly to the selected output channel, so all INSTRUMENT INSERT EFFECTS of your Instrument will be bypassed.

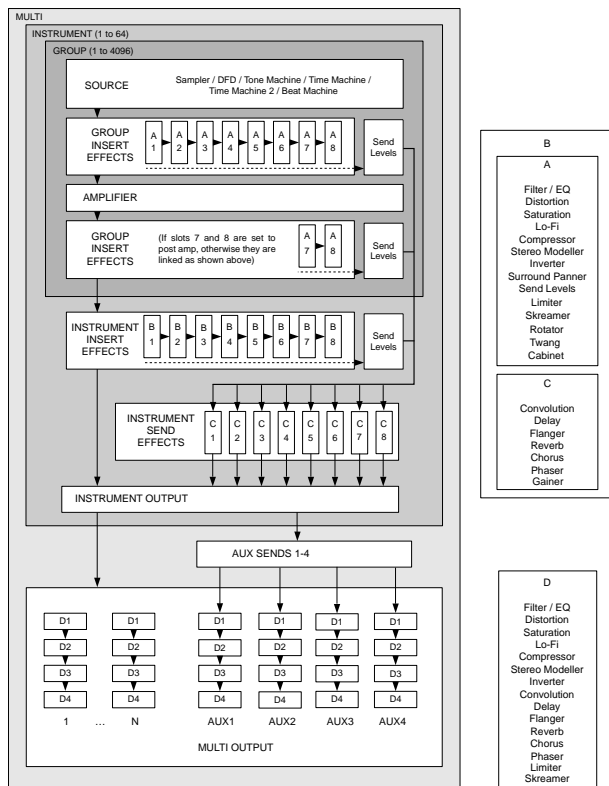
19. Signal Processors in KONTAKT

KONTAKT has a sophisticated signal flow structure that allows you to create flexible signal routings and process your audio signals with a multitude of effects and filters. This chapter will provide an overview on how to work with KONTAKT's signal processing modules; it will explain what kinds of modules you'll encounter during your work and how they can be put to use in an optimal way. Whenever we use the term “signal processor”, we're referring to both effects (which are the kind of audio processors you'd expect in a typical multi-effects device) and filters (which change the frequency content of your signals).

The following chapters will provide in-depth descriptions of the effects and filters that you'll find in KONTAKT's extensive collection of signal processors; for the moment, let's stick to the general basics. The following diagram depicts KONTAKT's signal flow structure:



Signal Path with custom Group output (#Instrument Output)



➔ Audio Signal Path (1 – 16 Channels)

Signal Path with default Group output (=Instrument Output)

Take a look at the three rows of 8 slots each that reside within the Instrument and Group structures: these are the slots that can take up signal processor modules of your choice. The first two rows – titled **GROUP INSERT EFFECTS** and **INSTRUMENT INSERT EFFECTS** – form chains of insert modules. This means that the audio signal is processed in its entirety by each of the signal processors in the order in which they are placed in the chain, with the output of the rightmost module in the chain being used as the output signal of the Group or Instrument.

In contrast, the slots of the **INSTRUMENT SEND EFFECTS** section take up modules that work independently from each other in a parallel fashion. The idea behind send effects is that you can “tap” your signals at various points of the signal flow, and send them to a send effect at an adjustable level.

If you're familiar with how signal processors are used in a studio environment, with devices like compressors and equalizers usually being inserted into the signal flow, and effects like reverbs being fed through the aux sends of a mixing console and added back to the main mix, you'll discover that KONTAKT's signal flow replicates this concepts and uses the same terminology in a lot of cases. Let's take a closer look at each row of slots.

19.1 Group Insert Effects



Signals generated within your Group will pass the modules in the Group Insert Effects chain from left to right.

This chain takes up modules which will process the output signal of a specific Group in the order of their placement in the chain. Here's a typical application example: Suppose you're creating a drum kit Instrument, which has every family of items (e.g. bass drum, snare, toms, and cymbals) separated into a Group of its own. The snare is a bit lacking in the "punch" department, so you want to use a compressor with a long attack time to bring out its initial "slam". Of course, though, you don't want your cymbals to be treated in the same way, so you enable the "snare" Group in the GROUP EDITOR for editing (take care that you deactivate all other groups, or else their chains will be changed in unison), and add the compressor to this Group's GROUP INSERT EFFECTS chain. Only the snare sounds will pass the compressor now; all other Groups are unaffected.

The GROUP INSERT EFFECTS chain has an additional feature that separates it from the INSTRUMENT INSERT EFFECTS chain: while the six slots to the left of the chain always receive the signal before it enters the AMPLIFIER module, the two slots on the right can optionally be placed behind the AMPLIFIER module in the signal flow. This is very useful in cases where you want to

use the **SEND LEVELS** module, which allows you to send signals to modules in the **INSTRUMENT SEND EFFECTS** slots. While you usually wouldn't want the operation of a distortion effect to be affected by your volume envelope, and therefore would place it before the **AMPLIFIER**, sending a pre-**AMPLIFIER** signal to a reverb or delay can give unexpected results. In most cases, you'll want send effects to receive the output of the **AMPLIFIER** as you're hearing it, so placing the **SEND LEVELS** module in one of the two rightmost slots by default is a good idea. If you're sure you don't need this, you can alternately switch these two slots to the normal pre-**AMPLIFIER** chain with the buttons on the right side of the panel.

There are a few other peculiarities to keep in mind when you're working with Group Insert Effects:

- Group insert modules work in a polyphonic fashion, which means that their effect will be computed separately for each voice that you play. In some cases, this can result in different sounds than you might expect, for instance when you use compressors or distortion effects. This behavior allows you to create modulations that work on a per-Voice basis, such as velocity-controlled distortion, or key-tracking filters. Keep in mind, though, that in consequence, this multiplies each module's CPU resources by the number of voices; if you don't need Group-specific or polyphonic processing, it's more efficient to move a module into the **INSTRUMENT INSERT EFFECTS** chain instead, where it will operate on the summed signal.

- ▶ Most parameters of Group insert effects can be modulated internally via a modulation matrix. This matrix can be accessed via the MODULATION button in the lower left corner of an effect panel. KONTAKT's modulation system is explained in detail in chapter 22 of this manual.
- ▶ Many of KONTAKT's signal processors are capable of processing multichannel signals. If a compatible effect follows a multichannel zone or a SURROUND PANNER, it will operate on all surround channels.

19.2 Instrument Insert Effects



The summed signals from your Groups will pass the Instrument Insert Effects chain just before they're sent to the assigned Output Channel.

This chain operates on the summed output signal of all Groups; otherwise, it works exactly as the GROUP INSERT EFFECTS chain, with the exception that it doesn't offer a choice of signal flow placement for any of its slots (by definition, it picks up the signals as processed by all AMPLIFIER and other Group-level modules). Also keep in mind that the summing of all outputs takes place before the signal enters this chain; in other words, all processors operate in a monophonic fashion, without any means to discern between voices. A typical application of modules in this chain would be a compressor or EQ that should operate on an Instrument signal in its entirety.

19.3 Instrument Send Effects

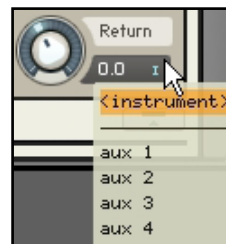


In contrast to the insert chains, the Instrument Send Effects work in parallel, and only receive signals that you explicitly send there via the Send Levels module.

Signal processors which are designed to operate on a signal in parallel to the unprocessed portion of the signal, usually with their output signal being added back to the main mix at a specific level, are called send effects.

To use a module as a send effect, add it to one of your Instrument's SEND EFFECTS slots, and tap a source signal to be sent there by adding the SEND LEVELS module to either a GROUP INSERT EFFECTS chain or the INSTRUMENT INSERT EFFECTS chain. A typical effect to be used in this way is a reverb; it's not usually meant to sound in isolation, but is normally being added back to the dry signal at a lower level. The amount of signal that's being sent to the effect is called the send level, while the effect's output level is called the return level.

After you have added an effect to a slot in the SEND EFFECTS row, you'll notice on its panel that it has a control labeled RETURN on its right side. This knob allows you to adjust the return level for this effect, as well as choose a routing target for its output signal by clicking on the small "I" icon next to the numerical readout.



Changing the output assignment of your send effects modules allows you to isolate wet effect signals from your Instrument's Output Channel.

Note that you can send a signal to a send effect from more than one place within your Instrument. In such cases, the signals will be summed before they enter the effect; in other words, all send effects operate in a monophonic fashion.

19.4 Adding Modules

There are two ways of adding a signal processing module to a slot:

- Drag it from the *Modules* tab of the **BROWSER** into the slot, as described in section 11.5. Note that some modules can only be added to certain places; for example, filters can't be used as send effects. In such cases, the mouse pointer will change into a “stop” icon when you try to drag those modules into the wrong place.
- Click on the down-arrow icon in the lower right corner of an empty slot and select a module from the drop-down menu.

To change a module's position in a chain, you can drag it onto the separator line between two slots; a vertical line will appear if it can be moved to this position. All modules to the right of this position (if any) will move one slot further to the right in order to make place for the module.

19.5 Deleting Modules

To delete a module from a slot, either click the “X” icon in the upper right corner of the module field, or select this module’s parameter panel and press the delete key on your keyboard.

19.6 Editing Module Parameters

Whenever you add a signal processing module to a slot, this module’s control panel will appear below the slot row. The panel can be shown and hidden by either clicking the button labeled **EDIT** in the lower left corner of the row, or by double-clicking on an effect module in that row. While the control panel is visible, it will show the controls of the currently selected module; clicking on another module will switch over to that one, so there will be only one module’s panel displayed below the row at any time.



Each signal processing module provides a panel with controls that let you adjust its parameters.

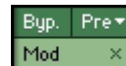
19.7 Common Parameters

All signal processing modules have a few functions in common; you can find these on the left side of their parameter panels.

BYP. (Bypass): Clicking on this button will toggle a bypass mode, which causes the module to pass its input signal on to its output, without any processing taking place. In the process of tweaking parameters, it's sometimes hard not to lose objectivity and unintentionally go "over the top" with your processing; hence it's good practice to re-check your signal against the unprocessed sound every so often when you're tweaking parameters.

PRE (Presets): This button opens a drop-down menu which allows you to pick a set of parameter values for this module from KONTAKT's preset library, as well as save your current settings as a new preset. Note that the insert and send slot rows (and, for that matter, most other modules in KONTAKT) have their own preset menus; these allow you to load and save entire signal processing chains.

MODULATION: Only modules that have been added as Group inserts have this button. It opens a MODULATION ROUTER, which allows you to create modulation assignments for most effect parameters via KONTAKT's internal modulation system. The modulation system is explained in chapter 22 of this manual.



Each control panel provides buttons for bypassing the module, opening a list of presets, and showing or hiding the Modulation Router for this module if it resides on the Group level.

19.8 Signal Processors in the Outputs Section

The facilities described so far in this chapter allow you to use signal processors in various places and configurations throughout your Instrument. But what if you want an effect to operate on more than one Instrument in your Multi?

For this reason, KONTAKT also provides effect slots that can be used to perform signal processing in both flavors – as inserts or sends – within the **OUTPUTS SECTION**, which is described in detail in chapter 12 of this manual. Inserts are provided within the Output Channel strips, while separate channels, called Aux Channels, provide the necessary means to use send effects across Instruments. Let's look at both of these in detail.

19.8.1 Output Channel Inserts

Click on the **OUTPUTS** button at the top of your window; the **OUTPUTS SECTION** will appear below the **RACK**. To the left, you'll see one or more output channel strips. Just below the channel name at the top, there are four slots; this is the insert chain for the respective channel. If you can't see it, click on the **SHOW INSERTS** button at the top of the **OUTPUTS SECTION**.



Inserting signal processing modules on Output Channels makes them operate on the signals of all Instruments which are assigned to the respective channel.

The output insert chain works exactly the same as the GROUP INSERT EFFECTS and INSTRUMENT INSERT EFFECTS chains, though laid out in a vertical fashion, with the topmost slot being the first of the chain. Clicking on the small arrow icon next to a slot will open a drop-down menu with the names of all available signal processors. Once you've selected and inserted a module from this list, you can show and hide its parameters for editing either by double-clicking on its name or by clicking the EDIT EFFECT button at the top of the OUTPUTS SECTION. Opening the drop-down menu and selecting the EMPTY label at its top will remove a module from the chain.

19.8.2 Aux Channels

Remember that the **INSTRUMENT SEND EFFECTS** slots provide a means to use effect modules as send effects, which can be used across multiple Groups; in much the same fashion, Aux Channels allow you to use send effects across multiple Instruments. You'll find the Aux Channel strips on the right side of the **OUTPUTS SECTION** mixer; technically, they're just additional output strips that get their signals from different places throughout the signal flow. Consequently, this also means that effects can be added in the same way as with the normal output channel strips; just open the drop-down menu at one of the insert slots and select a signal processor for the respective slot.

The Aux Channels can be fed from two places in KONTAKT. By clicking on the **Aux** button in the **RACK** header in Multi Instrument mode, a row of level controls will appear below each **INSTRUMENT HEADER**. With these controls, you can send the respective Instrument's output signal to one or multiple Aux channels at adjustable levels.



Optionally, KONTAKT can show a row of Aux Send controls below an Instrument Header.

Alternatively, you can re-route the output signal of any effects module that you add to a **SEND EFFECTS** slot to one of the Aux Channels. While this might seem counter-intuitive at first, it makes sense when you consider that you might want to access the wet signal of a send effect separately from the main output; routing it to an Aux Channel not only allows you to further process the wet signal in isolation, but also makes it possible to route the

signal to different physical KONTAKT outputs. You can also use the GAINER module within a SEND EFFECTS slot to build a “bridge” to the Aux channels and feed them with Group-specific signals; this process is explained in section 20.20 of this manual.

19.9 Types of Signal Processors

KONTAKT’s library of signal processing modules is divided into two main categories, namely effects and filters. The most convenient way to browse the collection of available modules is by using the *Modules* tab of the BROWSER, as explained in section 11.5. In addition to a categorized list of all available modules, it also displays a detailed explanation of what each module does and how it can be used.

The term “effects” is used within KONTAKT for signal processing modules that create special, usually non-linear effects like distortion, modulated delay, or reverb. In contrast to those, modules labeled as “filters” only affect the frequency response of signals. The library of filters is further divided into four categories, which are being explained in detail in chapter 21.

20. Effects

This section provides descriptions of all effects modules that are available in KONTAKT, as well as explanations of their parameters. The term “effects” encompasses dynamics tools, such as compressors, as well as audio processors that change the signal in an usually non-linear way, such as reverbs, flangers or distortion effects.

You can access these modules by dragging them from the *Modules* tab of the BROWSER into a free effects slot, or by clicking on the “+” icon in the lower right corner of each effects slot, which opens a drop-down menu of available effects.

20.1 Compressor

Compressors are dynamic tools which automatically reduce the level of loud passages in a signal, thereby affecting the signal's dynamic range. They are invaluable tools for a lot of common tasks – for instance, they can be used for reducing level peaks, thereby allowing the overall signal volume to be turned up without making it clip, or in other words, increasing the average volume of a signal. By careful adjustment of the attack and release times, they can also modify signal transients, allowing you to add punch to weak-sounding drums or taming exaggerated “clicking” in percussion sounds.

However, there is a point of diminishing returns; too much compression can result in a rather strained and weak sound.



Controls

MODE: Choose between *Classic*, *Enhanced*, and *Pro* mode. Each of these settings provides a different flavor of compression; if you feel you can't make a setting work with your sound, you should experiment with the other modes in this menu.

ST. LINK (Stereo link): When enabled, this causes the compressor to always act on the left and right channel in unison; this preserves the stereo image. When disabled, the COMPRESSOR becomes a dual mono processor, which means that both channels will be processed independently.

THRESH: Sets a level threshold above which the COMPRESSOR starts working. Only levels that rise above this threshold will be reduced by the compression; signals that stay below it will be left unprocessed.

RATIO: Controls the amount of compression, expressed as a ratio of "input level change" against "output level change". A RATIO of 1:1 means that no compression will be happening. A RATIO of 2:1 means that a level increase of 2 dB at the input will raise the output level by only 1 dB (keep in mind, though, that this applies only for input levels above the threshold). A 4:1 RATIO results in more aggressive compression, with a 4 dB level increase at the input causing a 1 dB increase at the output. Typical ratios for natural compression of instruments are between 2:1 and 4:1.

ATTACK: Adjusts the time the COMPRESSOR will take to reach the full RATIO value after an input signal exceeds the THRESHOLD level. If you're using compression mainly for transparent dynamic reduction, values between 5 and 10 ms are a good starting point. Longer attack times can be useful for emphasizing transients and adding "punch" to a signal.

RELEASE: Adjusts the time the compressor will take to fall back to non-compression after the input signal falls below the threshold. Typical values range from 50 to 250 ms.

OUTPUT: Controls the module's output level. This knob acts as a make-up gain control, which allows you to bring the output signal up to the same peak level as the input signal after compression. After you've found a compression setting, it's good practice to adjust the input and output signals so they have comparable levels, and then compare them via the BYPASS button. This way, you can make sure your adjustment really made the signal sound better (and not just louder).

20.2 Limiter

Limiters are actually a special form of compressors with a ratio of one to infinity, a threshold just below the maximum level, and a very short attack time. They act as a "safety net" to keep short signal peaks from overloading the system, which would result in audio clipping. While compressors have a range of artistic applications, limiters are usually used for technical reasons – they can tame signals with peaks which would otherwise overload the output, without requiring you to turn the signal's overall volume down.



Controls

IN GAIN: Sets the gain of the input signal. The **LIMITER** is different from the **COMPRESSOR** in that it has a fixed threshold; to achieve a sensible peak reduction, use this control to adjust the input gain until you see the **ATTENUATION** meter responding only to occasional level peaks.

RELEASE: Just like the **COMPRESSOR**'s control of the same name, this knob adjusts the time it takes the **LIMITER** to return to an unprocessed signal after the input level falls below the threshold.

ATTENUATION: This LED-style meter shows the amount of gain reduction that the **LIMITER** imposes on the signal. Limiting works best if this meter responds only to occasional level peaks; if it indicates permanent action, it's a sure sign that your **IN GAIN** is set too high. This can considerably degrade the quality of your signal.

OUTPUT: Adjusts the module's output level.

20.3 Inverter

With this module, you can invert the phase of your audio signal, or swap the left and right channels. Since the **INVERTER** only makes sense as an insert effect, you can use this module only in the **GROUP INSERT EFFECTS** and **INSTRUMENT INSERT EFFECTS** chains.



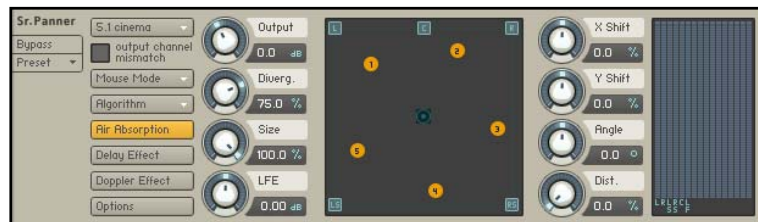
Controls

PHASE: Inverts the signal phase polarity.

PAN: Swaps the stereo channels.

20.4 Surround Panner

This module provides extensive and powerful surround mixing and automation capabilities to Group signals. It works with a multitude of input and output channel configurations, ranging from mono up to 16-channel surround sound, and allows you to place input signals as sound sources on a spatial plane, move them either manually or via automation, and simulate a range of natural dampening and doppler effects which occur when sound sources are being moved around the listener.



20.4.1 Menus and Buttons

SURROUND FORMAT: This drop-down menu selects the output format of the module. Options range from simple speaker-subwoofer splits (*1.1*) up to 16-channel surround formats, and also include a wide range of common cinema and music surround formats like 5.1, 7.1 and 10.2. Changing this setting does not affect the positions of your sound sources on the plane. The following table lists all available surround formats along with their channel assignments. Refer to these channel maps if you're unsure which channel will carry which speaker signal at the module's output.

Audiochannel #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.1 Mono + LFE	C	Lf														
2.0 Stereo	L	R														
2.0 Stereo Wide	L	R														
2.1 Stereo + LFE	L	R	Lf													
2.1 Stereo Wide + LFE	L	R	Lf													
3.0 Surround (LRS)	L	R	S													
3.0 Front (LCR)	L	R	C													
3.1 Surround (LRS) + LFE	L	R	S	Lf												
3.1 Front (LCR) + LFE	L	R	C	Lf												
4.0 Surround (LRCS)	L	R	C	S												
4.0 Quadraphonic	L	R	Ls	Rs												
4.1 Surround (LRCS + LFE)	L	R	C	S	Lf											
4.1 Quadraphonic (+ LFE)	L	R	Ls	Rs	Lf											
5.0 Cinema	L	R	Ls	Rs	C											
5.0 Music	L	R	Ls	Rs	C											
5.0 Pentaphonic	L	R	Ls	Rs	C											

Audiochannel #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
5.1 Cinema + LFE	L	R	Ls	Rs	C	Lf										
5.1 Music + LFE	L	R	Ls	Rs	C	Lf										
5.1 Pentaphonic + LFE	L	R	Ls	Rs	C	Lf										
6.0 Cinema EX	L	R	Ls	Rs	C	Cs										
6.0 Music EX	L	R	Ls	Rs	C	Cs										
6.0 Hexaphonic	L	R	Ls	Rs	C	Cs										
6.1 Cinema EX + LFE	L	R	Ls	Rs	C	Cs	Lf									
6.1 Music EX + LFE	L	R	Ls	Rs	C	Cs	Lf									
6.1 Hexaphonic + LFE	L	R	Ls	Rs	C	Cs	Lf									
7.0 Cinema	L	R	Ls	Rs	Lc	Rc	C									
7.0 Music	L	R	Ls	Rs	L2	R2	C									
7.0 Heptaphonic	L	R	Ls	Rs	L2	R2	C									
7.1 Cinema + LFE	L	R	Ls	Rs	Lc	Rc	C	Lf								
7.1 Music + LFE	L	R	Ls	Rs	L2	R2	C	Lf								
7.1 Heptaphonic + LFE	L	R	Ls	Rs	L2	R2	C	Lf								
8.0 Octaphonic Circ	L	R	Ls	Rs	L2	R2	C	Cs								
8.0 Octaphonic Rect	L	R	Ls	Rs	L2	R2	L3	R3								
8.1 Octaphonic Circ + LFE	L	R	Ls	Rs	L2	R2	C	Cs	Lf							
8.1 Octaphonic Rect + LFE	L	R	Ls	Rs	L2	R2	L3	R3	Lf							
10.2 Surround TH + 2 LFE	L	R	Ls	Rs	L2	R2	C	Cs	Lh	Rh	Lf	Lf				
12.0 Cinema Extended	L	R	Ls	Rs	Lc	Rc	C	Cs	L2	R2	L3	R3				
12.1 Cinema Extended + LFE	L	R	Ls	Rs	Lc	Rc	C	Cs	L2	R2	L3	R3	Lf			
13.0 Cinema Plus	L	R	Ls	Rs	Lc	Rc	C	Cs	Lh	Rh	L3	R3	CC			
13.1 Cinema Plus + LFE	L	R	Ls	Rs	Lc	Rc	C	Cs	Lh	Rh	L3	R3	CC	Lf		
16.0 Cinema Surround	L	R	Ls	Rs	Lc	Rc	C	Cs	Lh	Rh	L3	R3	L2	R2	Ch	Csh
16.0 Theater Surround	L	R	Ls	Rs	Lc	Rc	C	Cs	Lh	Rh	L3	R3	L2	R2	C2	C3

20.4.2 Explanation of channel abbreviations:

Left	L	Left 3	L3	Right Center	Rc	Center 3	C3	Low Frequency Effects	Lf
Right	R	Right 3	R3	Center Surround	Cs	Surround	S	Left High	Lh
Left 2	L2	Center	C	Center Center	CC	Left Surround	Ls	Right High	Rh
Right 2	R2	Left Center	Lc	Center 2	C2	Right Surround	Rs		

Table of available surround formats, along with their channel assignments.

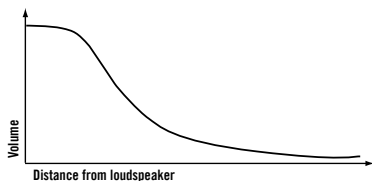
If you need to re-assign channels to different outputs, you can do this on the **CHANNEL ROUTING** page of the **AMPLIFIER MODULE** (refer to chapter 18 of this manual for an in-depth explanation).

MOUSE MODE: This drop-down menu allows you to choose from a list of algorithms which affect how your input sources will be positioned on the plane and respond to mouse movements.

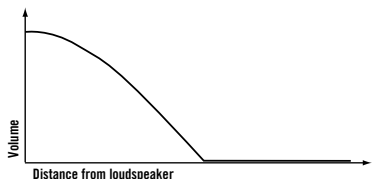
1. *Mono Mix:* All sound sources will be set to the same position.
2. *Sync:* When you drag a sound source, all other sound sources will move along in the same direction.
3. *Center Mirror:* Sound source positions will be mirrored at the center point of the plane.
4. *X Mirror:* Sound source positions will be mirrored along the X axis.
5. *Y Mirror:* Sound source positions will be mirrored along the Y axis.
6. *XY Mirror:* Sound source positions will be mirrored along the X and Y axis.
7. *Individual:* Each source can be positioned individually with the mouse.

ALGORITHM: Determines how the level of a sound source will be affected by its distance from the center. The drop-down menu offers three algorithms:

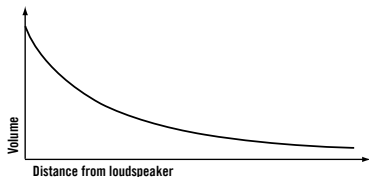
- *Constant Power* – this panning algorithm will adjust the relative speaker levels of a sound source in a way that preserves the source's apparent volume, regardless of its panning position. Placing a source icon right above a channel icon will isolate the source signal on the respective channel. Moving it around the plane will distribute its signal among the respective speakers in relation to their distance from the source, keeping the overall apparent volume (or, more precisely, the power) constant. This behavior will be affected by the DIVERGENCE setting.



- *Sinusoid* – this algorithm uses a sine function to adjust the volume of a source in relation to its distance from each speaker. Setting the DIVERGENCE parameter to lower values will result in a more directional image. If you move a source far away from speakers and use a high DIVERGENCE setting, its level can drop to silence.



- *Logarithmic* – this panning algorithm uses a logarithmic function to change the level of a source in relation to its distance from each speaker.

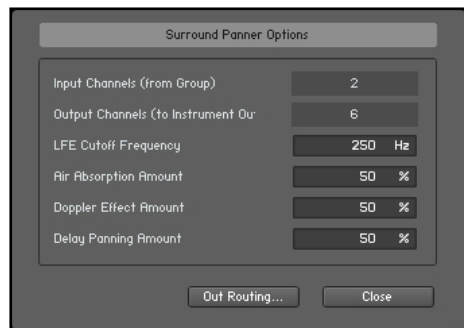


None of the above algorithms or modes is tied to a specific channel format. We recommend that you experiment with the algorithms and parameters in order to find the most suitable setting for your surround production.

AIR ABSORPTION: If a sound source moves away from a listener in the real world, the sound that reaches the listener will gradually lose its high frequencies. When this button is activated, the **SURROUND PANNER** will simulate this absorption effect. If you'd like to increase the impression of distance further, even after you've dragged a sound source all the way to the plane border, increasing the size of the sound field with the **SIZE** control will gain you some more space.

DELAY: As sound waves take some time to propagate through the air, sounds from sources which are further away from a listener will be delayed in relation to sounds in the vicinity. When this button is activated, the **SURROUND PANNER** will replicate this effect with a delay line. Enabling this feature can dramatically improve localization, but it also uses a lot of CPU power. If you want to simulate positioning entirely with delays (and keep levels always constant), set the divergence control to 0%.

DOPPLER EFFECT: In the real world, this effect – usually associated with ambulances or racing cars going past – is a direct consequence of the delay and intrinsically tied to it; in the microcosm of KONTAKT, though, both effects can be separately controlled. When this button is activated, the **SURROUND PANNER** simulates the pitch change when a sound source moves quickly toward or away from a listener. To hear this effect in action, move the sound source rapidly from one corner into the opposite one. It's more pronounced when the travel distance is longer, so you might have to zoom out with the **SIZE** control in order to hear it.



The Surround Panner's Options Dialog lets you adjust various parameters of the Doppler, Air Absorption, and Delay effects.

OPTIONS: This button will open a pop-up dialog which allows you to change the underlying parameters of the **DOPPLER**, **AIR ABSORPTION**, and **DELAY** effects; furthermore, you can adjust the crossover frequency for the LFE channel.

The dialog will also display the number of input and output channels that are currently in use. The button labeled **OUT ROUTING...** will take you directly to the **CHANNEL ROUTING** section of the **AMPLIFIER MODULE**, where you can change channel routings and create mix-up or mix-down configurations to convert between channel layouts.

20.4.3 Controls

OUTPUT: Adjust the module's output level.

DIVERGENCE: Adjusts the amount of distance-dependent level changes and, consequently, the directional focus of sound sources on the surround plane. Setting the knob to 0% will result in constant levels regardless of positioning.

SIZE: Adjusts the size of the surround plane. When set to 100%, the area surrounded by the speakers will fill out the plane window, so it won't be possible to move a sound source beyond the limits of the speakers. Turning the knob counter-clockwise will "zoom out" and allow you to place sources outside the area of the speaker arrangement.

LFE: If the currently selected output configuration includes a low frequency effects (LFE) channel, this control adjusts its output level. Note that the LFE channel signal is derived from a sum of all input signals via a frequency crossover; the frequency at which the split occurs can be set in the options dialog.

X SHIFT: Imparts a constant offset on the X positions of all sound sources.

Y SHIFT: Imparts a constant offset on the Y positions of all sound sources.

ANGLE: Rotates all sound sources around the center point.

DISTANCE: Adds a constant offset to the distances of all sound sources from the center point.

METER: The output levels of all channels in the currently selected **SURROUND FORMAT** are displayed here.

20.4.4 Surround Panner Automation

Automating the surround panner is particularly interesting for creating sounds that move around the room. There are several ways to accomplish this. If you need complete control over your motion patterns, you can use your host automation or external MIDI controllers to control the positioning parameters from outside KONTAKT. If you want to create automatic motion, using KONTAKT's **MODULATION ROUTER** opens up a range of very interesting and creative possibilities.

20.4.5 Host/MIDI Automation

If you want to modulate the **SURROUND PANNER** via your host or external MIDI controllers, you can assign external host automation data or MIDI controllers to the **X SHIFT**, **Y SHIFT**, **ANGLE**, and **DISTANCE** parameters by dragging the respective automation sources from the *Auto* tab of the **BROWSER** onto the knobs you'd like to automate. For more information about external automation, refer to section 11.7 of this manual.

20.4.6 Internal Modulation

Using internal modulators on the **SURROUND PANNER** offers a multitude of interesting possibilities, ranging from sounds that move around the room in

a circular fashion to unpredictable and organic patterns of random motion. To create a modulation assignment, right-click on a knob and choose a modulation source from the drop-down menu, then adjust the assignment parameters and the source's controls (if any). After you have created an assignment, observe the SURROUND PANNER's plane window when playing a note; you'll notice that for every static source icon, there's a darker icon moving along the plane. The bright icons display the sources' original positions (which can still be changed by dragging the icons around), while the darker icons depict the actual positions after all modulations have been applied.

It's hardly possible to describe the whole range of applications of modulating the SURROUND PANNER's parameters, so we'll look at a few common scenarios instead. Re-creating these should get you a feel for what will be possible with some further experimentation.

- Circular motion. In order to rotate your sources around a pivot point, thereby creating a circular motion path, modulate the **ANGLE** parameter of the SURROUND PANNER via a SAWTOOTH LFO. The distance of each source from the pivot point can be changed either by dragging the original positions, or via adjusting the surround panner's **DISTANCE** parameter. To change the direction of the movement, enable the **INVERT** button of the assignment in the MODULATION ROUTER. You can also synchronize the motion to the host or MASTERKONTROL tempo by switching the unit of the LFO's **FREQ.** parameter to a note value.
- Random motion. This is a basic method to make your sources move around in an unpredictable way. Just assign two random modulators to the **X SHIFT** and **Y SHIFT** parameters. You can adjust how far the sources will stray from their original positions by adjusting the modulation intensities of these assignments.

- Fly-by paths. Assigning envelope modulators to various parameters, most notably X SHIFT and Y SHIFT, allows you to define accurate and reproducible motion paths. It can get a while to understand how various envelope shapes relate to the resulting motion patterns, but once you've gotten the grip on it, you'll be able to create virtually all kinds of pre-defined motion paths – especially when you're using flexible envelopes.

20.5 Saturation

This module is basically an amplifier with a non-linear characteristic. It allows you to recreate the effect of tape saturation, which causes an increase of high-level energy in your signal.



Controls

SATURATION: Adjusts the transfer curve. A negative setting results in a characteristic that will expand the signal – lower sample values will be attenuated, higher values will be amplified. Positive settings do the opposite and thusly simulate the compression-like saturation of an analogue circuit. At a value of 0.0, the signal will pass the module unprocessed.

OUTPUT: Adjusts the module's output level.

20.6 Lo-Fi

This module adds various digital artifacts, like quantization noise or aliasing, to a clean signal. It's great for roughing up sounds that would otherwise be too plain and featureless.



Controls

BITS: Re-quantizes the signal to an adjustable bit depth. Fractional bit levels (such as 12.4 bits) are possible and can add considerable “grit”. Audio CDs have a quantization depth of 16 bits, old samplers frequently used 8 or 12 bits, and 4 bits evoke memories of countless irritating children’s toys.

S.RATE (Sample Rate): Re-samples the signal to an adjustable sample rate. The resampling is done without any kind of (usually mandatory) low-pass filtering, which causes all kinds of wonderful aliasing artifacts. The sample rate goes all the way down to 50 Hz, which will not leave much of the original signal.

NOISE: Adds hiss to the audio signal.

N. COLOR: Adjusts the frequency characteristic of the noise and acts as a low-pass filter.

OUTPUT: Adjusts the module’s output level.

20.7 Stereo Enhancer

This module allows you to control the width of your signal's stereo base, change the panning, and create a pseudo-stereo signal from mono sources.



Controls

PSEUDO STEREO: When activated, the module uses a pseudo-stereo algorithm to create a stereo signal from a mono source. This feature should only be used with mono signals and tends to create mono-incompatible sounds, which can disappear from a mix when it's being played back in mono.

SPREAD: Collapses (counter-clockwise) or expands (clockwise) your signal's stereo base. At the far left position, stereo signals will be summed to mono. Positive values will result in an artificial widening of stereo sources that has a tendency to apparently expand beyond the speakers, but watch out – just like the PSEUDO STEREO feature, this tends to cause mono incompatibilities in your mix.

PAN: This control allows you to place your signal within the stereo field. It works exactly like the PAN control of the AMPLIFIER module.

OUTPUT: Adjusts the module's output level.

20.8 Distortion

This module causes distortion by clipping or rounding off high sample values. It thereby simulates the behavior of overloaded transistor or tube circuits, adding artificial harmonics to a sound.



Controls

MODE button: Selects between either *Tube* or *Transistor* characteristics. *Tube* distortion creates a smooth saturation, which emphasizes even harmonics, while the *Transistor* setting generates odd harmonics that create a harsher-sounding clipping effect.

DRIVE: Adjusts the amount of distortion.

DAMPING: Turning this knob clockwise attenuates high frequencies in the output signal, thereby counteracting the brightness caused by the artificial harmonics.

OUTPUT: Adjusts the module's output level. Since distortion boosts the gain considerably, it's often necessary to attenuate the signal at the output stage.

20.9 Send Levels

This utility module can be added to the **GROUP INSERT EFFECTS** and **INSTRUMENT INSERT EFFECTS** chains and allows you to send a signal from within the insert chain to any existing send effect at adjustable levels.



Controls

LEVELS: On the left side of the **SEND LEVELS** module, you'll see a level control for each send effect that's currently in one of your **INSTRUMENT SEND EFFECTS** slots – if you didn't add any send effects yet, the panel will be empty. The knobs allow you to adjust the level at which the signal will be sent to the respective effect.

LEVEL METERS: These LED-style peak meters provide visual feedback on the send levels.

20.10 Skreamer

This module offers an alternate overdrive algorithm that sounds warmer and smoother than the **DISTORTION** effect.



Controls

TONE: Controls the brightness of the sound. Turning this knob clockwise will result in a more pronounced top-end, which works great on bright, screaming leads and biting rhythms. Turning it counter-clockwise results in a mellower, darker sound.

DRIVE: Adjusts the amount of distortion.

BASS: Adjusts the low frequency gain.

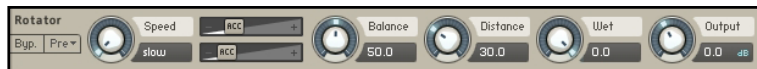
BRIGHT: Adjusts the high frequency gain.

WET: Adjusts the ratio between clean and distorted tone. At the maximum setting, only the wet signal will be heard.

OUTPUT: Adjusts the module's output level.

20.11 Rotator

The **ROTATOR** effect realistically simulates the sound of rotating speaker cabinets, which are commonly associated with drawbar organs that became popular in rock music of the 60s and 70s. Although the effect is almost intrinsically tied to “the” prototypical drawbar organ sound, it works equally well on guitars, synth pads, and a wide range of other sounds.



Controls

SPEED: Although this parameter appears as a knob in order to facilitate automating, it really only has 2 positions – SLOW and FAST. A change of this setting realistically simulates the acceleration or braking of the rotor.

ACCELERATION and BRAKE SPEED (horizontal faders next to the **SPEED** control): These adjust how quickly the rotors of the treble (upper fader) and bass (lower fader) parts of the cabinet will react to speed changes. At the rightmost position, the respective speaker will change its speed instantly, while it will take a long time to reach its designated speed with the fader at the leftmost position.

BALANCE: Controls the relative levels of the cabinet's treble and bass parts.

DISTANCE: Controls the simulated distance between the cabinet and the pickup microphones. A closer distance results in a wider stereo panorama.

20.12 Twang

The **Twang** effect simulates the rich tube sound of classic guitar amps from decades ago. It's ideal for screaming leads and crunchy rhythm guitar sounds, as well as clean sounds with personality.



Controls

BRIGHT: A tonal option which increases the high frequency content of the signal.

POLYPHONIC: If this button is inactive, the TWANG module will work as a mono effect, which causes stereo signals to be summed to mono at its input; when active, the effect operates on each input channel separately.

VOLUME: Controls the input level. In contrast to the OUTPUT knob, which merely adjusts the overall level of the module, this knob works like the gain control of a guitar amp and affects the amount of distortion.

TREBLE, MID and BASS: These controls adjust the respective levels of the signal's high, midrange, and low frequency components.

OUTPUT: Adjusts the module's output level.

20.13 Cabinet

This module simulates the sound of a guitar cabinet recorded through a microphone. By following a distortion effect (like the SKREAMER) with this module in your insert chain, you can simulate a complete guitar amp.



Controls

CABINET TYPE (small pane at the left side of the module): Allows you to choose the simulated cabinet model via the up and down buttons.

SIZE: Adjusts the size of the simulated cabinet. Larger cabinets tend to have a more pronounced bass response, while smaller cabinets can sound thin and tinny.

AIR: Controls the level of early reflections in the room response, adding a sense of space to the sound.

TREBLE (upper horizontal fader): Boosts or cuts the level of the higher frequencies.

BASS (lower horizontal fader): Boosts or cuts the level of the lower frequencies.

OUTPUT: Adjusts the module's output level.

20.14 Phaser

This effect continually changes the phase relationships in your signal with an all-pass filter. This results in a comb filtering effect, which attenuates some frequencies while boosting others. The sound is similar to that of a flanger, but in a more subtle manner.



Controls

DEPTH: The amount of LFO modulation. Higher values cause the phaser effect to sweep over a wider frequency range.

SPEED: The LFO modulation speed. To synchronize the speed to your host or **MASTERKONTROL** tempo, click on the **SPEED** control's unit display and choose a note length value from the drop-down list.

PHASE (0 to 90 degrees): Imparts an LFO phase difference between the left and the right stereo channel. This can considerably increase the width of the output signal's stereo base.

FEEDBACK: This control adjusts the emphasis of the peaks and notches that the comb filter effect imparts on the signal.

RETURN (visible when used as Send Effect): Adjusts the return level of the module's output signal.

DRY and **WET** Sliders (visible when used as an Instrument Insert Effect): Adjusts the respective levels of the original and processed signals. Note that the typical phasing effect is created by the combination of both signals, so setting these to the same levels results in the most pronounced effect.

20.15 Flanger

This module splits the audio signal up and delays one version in relation to the original signal. By modulating the delay time, as well as feeding an adjustable amount of the output signal back into the input, the **FLANGER** creates a characteristic “whooshing” sound. Just like the **PHASER** module, the **FLANGER** uses a separate LFO for each stereo channel, with the phase relationship between both LFOs being adjustable.



Controls

DEPTH: The amount of LFO modulation. Higher values cause the flanging effect to sweep over a wider range.

SPEED: The LFO speed. To synchronize the speed to your host or **MASTERKONTROL** tempo, click on the **SPEED** parameter's unit display and choose a note length value from the drop-down list.

PHASE (0 to 90 degrees): Imparts an LFO phase difference between the left and the right stereo channel. This can considerably increase the width of the output signal's stereo base.

COLOUR: Adjusts the delay line's range of operation and, consequently, the color of the flanging effect. Small values result in short modulated delay times, making the **FLANGER** sound more like a phaser.

FEEDBACK: Feeds a certain amount of the delayed signal back into the module's input, thereby creating a more pronounced effect.

RETURN (visible when used as a send effect): Adjusts the module's return level.

DRY and **WET** sliders (visible when used as an Instrument insert effect): Adjusts the respective levels of the original and processed signals. Note that the typical flanging effect is created by the combination of both signals, so setting these to the same levels results in the most pronounced effect.

20.16 Chorus

The CHORUS module “thickens” the audio signal by splitting it up and detuning one version in relation to the original. Separate LFOs with an adjustable phase relationship detune each stereo channel independently for creating wide-panorama effects.



Controls

DEPTH: Adjusts the range of modulated detuning. Higher values give a more pronounced chorusing effect.

SPEED: Adjusts the LFO speed. To synchronize the speed to your host or MASTERKONTROL tempo, click on the SPEED parameter’s unit display and choose a note length value from the drop-down list.

PHASE (0 to 90 degrees): Imparts an LFO phase difference between the left and the right stereo channel. This can considerably increase the width of the output signal’s stereo base.

RETURN (visible when used as a send effect): Adjusts the module’s return level.

DRY and **WET** sliders (visible when used as an Instrument insert effect): Adjusts the respective levels of the original and processed signals. Note that the typical chorus effect is created by the combination of both signals, so setting these to the same levels results in the most pronounced effect.

20.17 Reverb

This module simulates the natural reverberation that occurs when a sound source is placed in an acoustic environment, thus adding a feeling of spaciousness to the sound.



Controls

PRE-DLY.: Introduces a short delay between the direct signal and the reverb trail build-up. This corresponds to the natural reverberation behavior of large rooms, where a short time elapses before the first reflection of a sound wave returns from a wall.

SIZE: Adjusts the size of the simulated room. This affects the duration of the reverb trail.

COLOUR: This control allows you to adjust the construction material of the simulated room and, consequently, the color of the reverb trail. Low values simulate softer surfaces like wood, while high values simulate the reflection behavior of hard surfaces like concrete.

DAMPING: Sets the amount of simulated absorption that takes place in rooms due to furnishings, people, or acoustic treatments affecting the reflection behavior.

STEREO: Higher values increase the stereo base width of the output signal. Lower values simulate a closer distance to the sound source.

RETURN (visible when used as a send effect): Adjusts the module's return level.

DRY and WET sliders (visible when used as an Instrument insert effect): Adjusts the respective levels of the original and processed signals. In common scenarios, the reverb signal is mixed in at a lower level than the direct signal.

20.18 Delay

This module offers a delay line that can optionally be synced to the tempo and provides an adjustable feedback level, a low-pass filter, and a pan control for ping-pong echo effects. If you don't use the tempo syncing feature, the available delay range is 5 to 2900 ms. Delay times lower than 20 ms are not discernible as delays, but can produce interesting comb filtering effects.



Controls

TIME: The delay time in milliseconds. To synchronize the time to your host or MASTERKONTROL tempo, click on the SPEED parameter's unit display and choose a note length value from the drop-down list.

DAMPING: Attenuates high frequencies in the delayed signal. Turning this control clockwise will increase the damping effect. If you have set a

feedback level, the signal will gradually lose more high frequency content with each repetition.

PAN: Setting a value higher than 0 creates a panning effect, which alternates echos between the left and the right side of the stereo panorama – this is affectionally called a ping-pong delay. Higher values will result in wider panning; at 100, signals alternate between the far left and far right channel.

FEEDBACK: Controls the amount of the output signal that's being fed back into the input of the delay line, thereby creating a series of echos that gradually fade into silence.

RETURN (visible when used as a send effect): Adjusts the module's return level.

DRY and **WET** sliders (visible when used as an Instrument insert effect): Adjusts the respective levels of the original and processed signals. In common scenarios, the delayed signal is mixed in at a lower level than the direct signal.

20.19 Convolution

Convolution is a sophisticated mathematical process that, technically speaking, allows you to replicate the acoustical behavior of a linear system – such as a room, a speaker or a hardware reverb unit – for use with your own signals. To accomplish this, a short audio recording of a wide-band signal played through the system is fed into the convolution processor. This recording is usually a normal audio file, called an impulse response.

Convolution is best known among users as a method for achieving highly realistic reverbs; it works just as well for simulating the characteristic resonances of speaker cabinets and other loudspeakers, though.

KONTAKT's CONVOLUTION processor is somewhat unique in that it fully supports a multi-channel signal flow, allowing you to use surround impulse responses. It can be used within the INSTRUMENT INSERT EFFECTS and the INSTRUMENT SEND EFFECTS chains, or as an Output effect.



KONTAKT includes an extensive library of impulse responses, which range from recordings of real rooms and speaker cabinets to synthetic impulse responses that are well-suited for special effects, but you can just as easily use third-party impulses in WAV format.

Controls

IMPULSE WINDOW: This window provides a display of the currently loaded impulse response and, if active, the VOLUME ENVELOPE. You can drag impulse responses from the library into this window to load them – this will keep your other settings intact. The row at the top displays the filename of the loaded impulse response, as well as its bit depth, sample rate, and number

of channels. Just like in the **MAPPING EDITOR** and **WAVE EDITOR**, hovering your mouse pointer over the filename will show the full path to the file.

PRESET MENU: In addition to the usual list of available presets, this drop-down menu offers an *Open IR File* command, which allows you to load a sample in WAV or AIFF format to be used as an impulse response.

PRE-DLY.: Just like the **REVERB** module's parameter of the same name, this control introduces a short amount of delay between the direct signal and the convolution output. This is useful when used with reverb responses to simulate the reverberation of big rooms, where a short delay occurs between the direct sound and the first reflections from distant walls.

RETURN (visible when used as a send effect): Adjusts the module's return level.

DRY and **WET** sliders (visible when used as an Instrument insert effect): Adjusts the respective levels of the original and processed signals. In common scenarios, the reverb signal is mixed in at a lower level than the direct signal.

LATENCY: Adjusts the module's latency setting in five steps (1.5, 2.9, 5.8, 11.6, and 23.2 ms). If you hear crackles or other artifacts, you can try to increase this value, which will result in **KONTAKT**'s overall latency being increased (and thus all signals being delayed). If you don't want this, you can disable the latency compensation by activating the last entry in this menu. This way, the overall latency won't be increased, but the wet signal of the **CONVOLUTION** processor will be delayed in relation to the dry signal (which actually can work just fine with reverbs).

SAMPLE RATE: Allows you to divide the sample rate in nine steps (1/1, 1/1.5, 1/2, 1/2.5, 1/3, 1/4, 1/6, 1/8, and Auto). If the **PRESERVE LENGTH** button

is not enabled, changing the sample merely changes the playback speed of the impulse response, resulting in longer reverb trails and changed frequency characteristics. Activating **PRESERVE LENGTH** will keep the reverb trail intact, but lower the sampling rate at which the convolution process takes place, thereby reducing the CPU usage along with the quality.

REVERSE BUTTON: Reverses the impulse response for special effects.

AUTO GAIN: If this button is active, the processor will keep the overall level constant when parameters are adjusted that would otherwise affect the level. If you turn this off, be sure to monitor at low levels as you make adjustments, as volume changes can be drastic – take care of your ears!

VOLUME ENVELOPE: This feature allows you to change the volume characteristic of the impulse response to your needs. When activated, a graphically editable 8-segment envelope will be drawn on top of the waveform display in the impulse response window.

EARLY / LATE: These mode buttons switch the 3 knobs below between affecting the early reflections and the tail part of the impulse response.

IR SIZE: Artificially compresses or stretches the impulse response in time.

HIGHPASS: Adjusts the cutoff frequency below which the signal's frequency content will be attenuated.

LOWPASS: Adjusts the cutoff frequency above which the signal's frequency content will be attenuated.

20.20 Gainer

This module can be used both within the **INSTRUMENT INSERT EFFECTS** chain and as a send effect. Depending on where you choose to place it, it serves two different purposes.

As an Instrument insert effect, you can boost or attenuate the signal level between the previous stage's output and the next stage's input. In other words, it works like an additional amplifier stage.



The idea behind using the **GAINER** as a send effect needs some more explanation. As every send effect can optionally route its own output signal to one of the Aux Channels in the **OUTPUTS SECTION** (instead of feeding it back into the Instrument), the **GAINER** can act as a transparent bridge between the send slots and the Aux Channels. Therefore, it allows you to send signals at adjustable levels to the Aux Channels on a per-Group basis, which greatly increases routing flexibility and can even save a lot of CPU resources – just move effects that you would otherwise have created as send effects in multiple Instruments to an Aux Channel instead, and use the **GAINER** within the Instruments' send effects slots in order to forward signals to this Aux channel. By changing the Aux channel's physical output assignment, you can even use external effects, whether they are plug-ins in your host program or outboard devices, from within Groups.

After you have inserted the **GAINER** module into a send slot, you'll notice that in addition to the **GAIN** control, it also provides the **RETURN** control which is common to all send effects on the right side of its panel. Next to the numerical readout of this control, you'll notice a small „I“ icon. Clicking on it opens a drop-down menu that allows you to select one of the Aux Channels as the routing target for the module's output. This way, whatever you'll send to this slot via the **SEND LEVELS** module will end up on the specified Aux Channel.

Controls

GAIN: The amplification or attenuation factor that will be applied to the signal in dB.

21. Filters

A filter is a signal processor which changes the frequency content of a signal that passes through it. This means that in contrast to effects like distortion, reverb, or chorus, it only changes the amplitude and phase of frequency components which are already present in your signal, without creating new frequency content.

Traditional filter designs generally exhibit one of four characteristics:

- ▶ Lowpass filters attenuate all frequencies above their cutoff point, leaving frequencies below unaffected.
- ▶ Highpass filters attenuate all frequencies below their cutoff point, leaving frequencies above unaffected.
- ▶ Bandpass filters attenuate all frequencies below and above a frequency range, which itself is being left unaffected.
- ▶ Band reject filters attenuate all frequencies within a range. Frequencies outside this range are being left unaffected.

Filters of these characteristics are further distinguished by the steepness of their attenuation curve, which is usually expressed in dB per octave. As the cutoff frequency is defined as the frequency where an attenuation of 3 dB occurs, a filter slope of 12 dB/octave with a cutoff frequency of 440 Hz attenuates frequency content at 880 Hz (an octave above the cutoff frequency) by 15 dB, frequencies at 1760 Hz by 27 dB, and so on. In digital filter design, specifying a filter slope as a number of “poles” has become the norm, with each pole corresponding to 6 dB of attenuation per

octave, such that a 1-pole filter will exhibit a gentle slope of -6 dB/octave, while a 6-pole filter with its slope of -36 dB/octave is more akin to a sonic razor blade. The pole notation is being used for KONTAKT's collection of sampler filters. If you find the concept of filter slopes confusing, don't worry – just remember that lower-order filters (like 1-pole and 2-pole forms) are generally better suited for gentle, unnoticeable tonal corrections, while higher-order filters (like 4-pole and 6-pole forms) tend to change your signal characteristics by a significant amount, and are thus better suited for broad treatments or effects.

KONTAKT's collection of filter modules is divided into 4 categories:

- ▶ Sampler Filters have no discernible sonic fingerprint, and are thus well-suited for neutral tone shaping.
- ▶ Synth Filters emulate the characteristics of classic synthesizer filters. They have a distinct character, often making them the first choice for synthetic sounds.
- ▶ Effect Filters are special filter modules that don't fit any of the traditional filter characteristics of either lowpass, highpass, bandpass or band rejection. An example of these would be vowel filters, which emulate the resonances of the human vocal tract.
- ▶ EQs are the kind of frequency tools that you can find on mixing consoles. They offer some ways of tonal alteration which aren't available with traditional filters, such as attenuating or boosting a specific frequency range by an adjustable amount.

The most convenient way to access KONTAKT's filter collection is by browsing the **FILTERS** page on the *Modules* tab of the **BROWSER**. Here you'll find a list of all available filters in each of the four categories, with icons

depicting their frequency response, and descriptions of what they do and how you can use them. If you have found a filter that you'd like to try, just drag it into one of your Instrument's signal processor slots.

In the following subsections, we'll briefly introduce the available filter modules in each category and describe their parameters.

21.1 Sampler Filters

This category contains utility filters which allow you to change the frequency content of your signals in a variety of highly adjustable ways, without imposing any prominent “signature sound” on them.

21.1.1 1 Pole Lowpass



CUTOFF: Adjusts the frequency above which signals will be attenuated with a filter slope of 6 dB/octave. This fairly gentle roll-off characteristic is typical of guitar tone controls.

21.1.2 1 Pole Highpass



CUTOFF: Adjusts the frequency below which signals will be attenuated with a filter slope of 6 dB/octave.

21.1.3 2 Pole Bandpass



CUTOFF: Adjusts the center frequency. Frequencies above and below this frequency will be attenuated with a filter slope of 12 dB/octave.

21.1.4 2 Pole Lowpass



CUTOFF: Adjusts the frequency above which signals will be attenuated with a filter slope of 12 dB/octave. This roll-off characteristic is noticeably steeper than that of a 1-pole filter, but it's still well-suited for subtle changes.

RESO. (Resonance): With a value greater than 0, this control will boost a small frequency range around the cutoff frequency. This emphasis is often associated with synthesizer sounds, especially when combined with filter modulation.

21.1.5 2 Pole Highpass



CUTOFF: Adjusts the frequency below which signals will be attenuated with a filter slope of 12 dB/octave.

RESO. (Resonance): With a value greater than 0, this control will boost a small frequency range around the cutoff frequency.

21.1.6 4 Pole Lowpass



CUTOFF: Adjusts the frequency above which signals will be attenuated with a filter slope of 24 dB/octave. This rather steep roll-off characteristic has been used in countless synthesizer filter designs, both in vintage and modern systems.

RESO. (Resonance): With a value greater than 0, this control will boost a small frequency range around the cutoff frequency.

21.1.7 4 Pole Highpass



CUTOFF: Adjusts the frequency below which signals will be attenuated with a filter slope of 24 dB/octave.

RESO. (Resonance): With a value greater than 0, this control will boost a small frequency range around the cutoff frequency.

21.1.8 4 Pole Bandpass



CUTOFF: Adjusts the center frequency. Frequencies above and below this frequency will be attenuated with a filter slope of 24 dB/octave.

Reso (Resonance): With a value greater than 0, the narrow frequency range around the center frequency will be boosted, while at the same time, the slope at which the filter attenuates frequencies to both sides of the center frequency will become steeper, thus narrowing the frequency range of the output signal.

21.1.9 4 Pole BR (Band Reject)



CUTOFF: Adjusts the center frequency of the “notch” at which frequency content will be attenuated.

Reso. (Resonance): With values greater than 0, this control will boost frequencies around the center frequency.

21.1.10 6 Pole Lowpass



CUTOFF: Adjusts the frequency above which signals will be attenuated with a filter slope of 36 dB/octave. This is a unusually steep filter cutoff that's best suited for special effects.

RESO. (Resonance): With a value greater than 0, this control will boost a small frequency range around the cutoff frequency.

21.2 Synth Filters

These filters all exhibit a discernible character; their sound is similar to that of filters found in various vintage synthesizers, so they're a good choice for synthetic sounds.

21.2.1 PRO-53

This is the same filter section that is provided by Native Instruments' PRO-53 software synthesizer. It's similar in nature to the 4-pole lowpass filter, but has a different and more distinctive signature sound.



CUTOFF: Adjusts the frequency above which signals will be attenuated with a filter slope of 24 dB/octave.

RESO. (Resonance): With a value greater than 0, this control will boost a small frequency range around the cutoff frequency. The resulting sound is often associated with synthesizer sounds, especially if combined with filter modulation.

21.2.2 4-Stage Ladder

This is another 4-Pole filter type, but based on a filter structure that exhibits different resonance characteristics. Increasing the resonance parameter adds a very pronounced peak, and frequencies below the cutoff point will be attenuated at higher settings.



CUTOFF: Adjusts the frequency above which signals will be attenuated with a filter slope of 24 dB/octave.

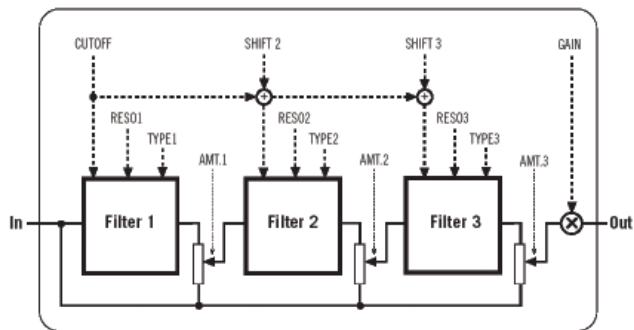
RESO. (Resonance): With a value greater than 0, this control will boost a small frequency range around the cutoff frequency.

21.2.3 3x2 Multimode Filter

The 3x2 MULTIMODE FILTER provides three separate filter bands, each of which can be continuously “morphed” between 3 characteristics (lowpass, bandpass, or highpass). Each filter band has a slope of 12 dB/octave. By combining these bands at various amounts, you can create almost every imaginable filter configuration. What’s more, the resonance controls of

each filter band exhibit a behavior known from very high-quality analog filters: at high settings, the filter will begin to oscillate and produce sound, even if there's no signal present at the input. This effect is known as self-oscillation.

3 x 2 POLE MULTI-MODE FILTER



The basic internal signal flow structure of the 3x2 Pole Multi-Mode Filter.

The 3x2 Multimode Filter requires more CPU power than other Kontakt filters, so use it only when you need this level of sophistication, or a self-oscillating filter.



CUTOFF: Adjusts the cutoff frequencies of the 3 filter bands in unison. The displayed value is only absolute for the first (topmost) filter band, the other two bands have cutoff frequencies relative to this one (see below).

SHIFT 2: Adjusts the second filter band's cutoff frequency as an offset in relation to the first filter. With a value of 0, both filters will have identical cutoff frequencies, while increasing the value will set the second cutoff frequency higher than the first.

SHIFT 3: Adjusts the third filter band's cutoff frequency as an offset in relation to the second filter.

RESO. 1 to RESO. 3 (Resonance): Adjusts the resonance (boost at the cutoff frequency) for each filter band. Values of 98% or higher will result in self-oscillation.

TYPE 1 to TYPE 3: Adjusts the characteristic of each filter band, allowing you to morph continuously between a lowpass (0.0), bandpass (0.5), or highpass (1.0) characteristic.

AMT. 1 to AMT. 3 (Amount): Adjusts the amount to which each filter band will affect the overall result. At a value of 0, the respective filter will be inactive.

GAIN: As high resonance settings can significantly increase the signal level, **KONTAKT** will automatically reduce the level the output level in such cases. You can compensate this with the **GAIN** control, but be careful – it's easy to get excessive volume levels from this filter.

21.3 Effect Filters

Filters in this category don't match any of the traditional filter characteristics, and are thus better suited for special effects.

21.3.1 Phaser

This module creates a distinct comb filter effect by using an allpass filter design that radically alters the phase relations in your signal. Note that there's also a PHASER module in the standard effects section, which has a built-in modulation mechanism. While that module and the phaser filter share the underlying principle, the filter is better suited for timbral changes, while the PHASER effect module is recommended for creating the classic effect of the same name that can be found in countless effects processors and guitar stomp boxes.



CUTOFF: Adjusts the center working frequency of the phaser's comb filter effect. Changing this parameter will alter the tonality of your sound in a distinct and not always easily predictable way.

RESO: Adjusts depth and narrowness of the notches that the phaser imposes on the frequency spectrum, and thereby the intensity of the effect.

21.3.2 Vowel A

This filter simulates the resonant frequencies of the human vocal tract; when forming a vowel, the throat and mouth cavities will change their shape in order to create a complex, natural filter which emphasizes certain frequencies in the sound created by the vocal chords. These characteristic frequencies, called formants, allow the human hearing to discern between different vowels, and are being replicated by this filter.



CUTOFF: Adjusts the center frequency of the filter. Various distinct frequencies across the spectrum will produce different vowels.

RESO. (Resonance): With values greater than 0, this control will emphasize the frequencies around the center frequency in order to create a sharper sound and enhance the effect.

21.3.3 Vowel B



This filter works similarly to the Vowel A module, but has a slightly different sonic character.

21.4 EQs

KONTAKT's fully parametric peak equalizers allow for a wide range of tonal alterations and corrections. Using up to three EQ bands per module, you can boost or cut any frequency range throughout the entire spectrum by up to 18 dB, with an adjustable BANDWIDTH parameter allowing you to choose between gentle corrections or very steep “surgical” edits.



The EQ module is available in 1-band, 2-band, and 3-band flavors. You can switch freely between these configurations without losing your settings. All bands offer 3 identical controls, namely:

FREQ. (Frequency): Adjusts the center frequency at which the boost or cut will occur.

BANDW. (Bandwidth): Adjusts the width of the frequency range that will be affected in octaves.

GAIN: Adjusts the amount of boost (positive values) or cut (negative values) at the center frequency.

22.Modulation in KONTAKT

KONTAKT's internal modulation system offers a powerful way to “animate” parameters, thus making them change over time in a variety of different and finely adjustable ways. For this purpose, most of KONTAKT's modules provide a table, called the MODULATION ROUTER, which allows you to assign various sources of modulation signals to that respective module's parameters.

If you're new to synthesizers and samplers, you might be unfamiliar with the concept of modulation, so we'll explain it briefly. If you already have worked with modulation, just skip the next paragraph.

Suppose you have a very simple tone generator with only one control, which changes the pitch of the generated tone. As players of acoustic instruments often use vibrato – a subtle “trembling” of the pitch – as a means to make their sound more expressive and dynamic, you'd like to simulate this effect with your generator. Of course, rapidly moving the pitch knob left and right is out of the question. Instead, you're using another generator that outputs a periodic waveform as well – though at a much lower frequency than your tone generator, let's say 5 Hz – and connect it to the pitch control of your tone generator. Now, the tone generator's pitch will begin to periodically sweep up and down “around” the pitch you've adjusted with the knob, which is precisely the effect you had in mind. This is a very simple example of modulation: you're using a generated control signal (which can be periodic, but doesn't have to) to change some parameter over

time. Of course, the example can be just as easily replicated in KONTAKT: the SOURCE MODULE will become your tone generator, its TUNE parameter your pitch knob, an LFO your source of a low-frequency control signal, and an entry in the MODULATION ROUTER the wire that connects both generators.

22.1 Modulation Sources

KONTAKT's library of sources which can be used for modulation is divided into four general categories:

- ▶ Envelopes are finely adjustable curves of varying shapes, which have a beginning and an end; these are usually being used for creating parameter changes, often non-repetitive, that can't be easily obtained from a traditional periodic waveform, such as a filter that opens and then gradually closes again after a key has been pressed.
- ▶ LFOs (Low Frequency Oscillators) are sources that generate a periodic waveform within a frequency range of 0.01 Hz up to about 210 Hz. In addition to the traditional set of waveforms found on synthesizers – namely *Sine*, *Triangle*, *Rectangle*, *Sawtooth*, and *Random* – KONTAKT also provides a complex LFO, which generates a mixture of other waveforms.
- ▶ External Sources provide access to control signals which are generated outside of KONTAKT's modulation source modules, such as incoming MIDI data, or constant and random values.
- ▶ Others include sources that don't fit into one of the other categories, such as step sequencers or envelope followers.



While control data obtained from external MIDI messages is constrained to the 128 numerical steps of the MIDI standard by its very nature, KONTAKT's internal modulation sources offer a much finer resolution.

22.2 Modulation Destinations

MODULATION ROUTERS can be found on most modules that work on a per-Group basis; this includes the SOURCE and AMPLIFIER modules, as well as signal processing modules in the GROUP INSERT EFFECTS chain. Furthermore, modulation source generators used in existing assignments can have their own parameters modulated as well, which makes for a multitude of complex (and, occasionally, mind-twisting) possibilities.

Modules outside the Group level, such as Instrument insert or send effects, do not support parameter modulation.

In the same way as you can use one modulation source to modulate multiple parameters, you can also combine multiple sources to modulate one parameter. If you create multiple assignments with the same destination parameter, the modulation signals will be mixed together – keep in mind, though, that a lot of modulation signals are bipolar, and thus can cancel each other out as well as accumulate their values.

22.3 Creating Modulation Assignments

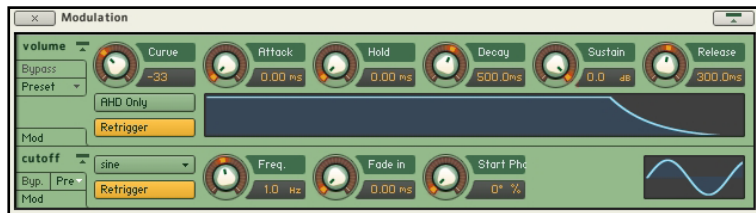
Each modulation assignment that actively affects a specific parameter at any given time will be displayed with a single row in the MODULATION ROUTER of the parameter's parent module. The MODULATION ROUTER can be shown and hidden by clicking on the button labeled MOD or MODULATION in the

lower left corner of a module. If this button does not exist, the respective module's parameters can't be modulated.



The Modulation Router of an Amplifier Module.

If a MODULATION ROUTER entry uses an internal modulation source for the assignment, you'll always find a corresponding modulation source panel at the bottom of the RACK in Instrument Edit mode; here you can adjust the parameters of the signal source, such as an LFO's frequency or envelope timings.



The Modulation Section contains all internal modulation sources used in your Instrument.

You don't need to scroll up and down to make adjustments to a modulation source and its MODULATION ROUTER entry, though; clicking one of the QUICK-JUMP buttons on both panels or simply pressing the “^” key (“~” on US keyboards) will instantly bring you to the respective other panel.

Adding a new entry to a MODULATION ROUTER table, thereby creating a new modulation assignment, can be done in one of three different ways. Which one you choose largely depends on your personal preference.

1. Right-click on the knob of a parameter that you want to modulate, then choose a modulation source from the drop-down menu which appears. The submenu at the bottom of this menu contains modulation sources which already exist in your Instrument (if any), and allows you to assign an existing source to more than one parameter. If the module's MODULATION ROUTER is not currently visible, adding a new assignment will show it. This allows you to make immediate adjustments to the assignment parameters.
2. In the BROWSER, select the *Modules* tab, then switch to the MODULATORS category. Choose a modulation source type from one of the four lists, then drag it onto a knob whose parameter you'd like to modulate. If the respective parameter can't be modulated, the mouse pointer will change into a “Stop” icon. This method does not allow you to re-use existing modulation sources.
3. Open the MODULATION ROUTER of a module and click on the ADD MODULATOR button on the left side of its last row. This will open the same drop-down menu of modulation sources that you'll get when you right-click on a knob. Since you can't specify a destination parameter this way, you'll usually have to change the modulated parameter via the drop-down menu on the right side of the new assignment entry.



The Quick-Jump button on Modulation Router entries and

22.4 Deleting Modulation Assignments

To get rid of a modulation assignment entirely, select its entry in the MODULATION ROUTER by clicking on its panel, then press the Delete key on your keyboard. If the assignment was using an internal signal source, and no other assignments in your Instrument are using the same source, the corresponding source panel will disappear from the MODULATION section of the RACK as well.

22.5 Assignment Controls

As mentioned, all controls which affect the behavior of a modulation source can be found on the respective source panel at the bottom of the RACK. There are additional parameters, though, that affect in which way this source module's output signal will be mapped to the parameter to which it has been assigned. Since a source can be used to modulate multiple parameters in different ways, it wouldn't make much sense to include these controls on the panel of the source; instead, they're a part of each assignment entry in the MODULATION ROUTER table.



From top to bottom, this Modulation Router contains entries for a volume envelope, a velocity-to-volume mapping, and a mapping which uses MIDI CC #10 data for the panorama position, with using the center as default.

From left to right, you'll find these controls on each assignment entry:

MODULATION SOURCE: If the entry belongs to an internal source assignment, this value can't be modified, but external source assignments will offer a drop-down menu here that allows you to switch to a different source.

QUICK-JUMP button (only visible on internal source assignments): Clicking on this button will immediately scroll down to the respective source's control panel at the bottom of the **RACK**. Once you're finished with your adjustments down there, the identical button on the panel will bring you back to where you came from.

MIDI CC NUMBER (only visible if source is *MIDI CC*): The modulation will acquire its values from incoming MIDI controller data with the number specified here. The modulation wheel usually sends MIDI CC #1 data, volume and expression pedals CC #7 and #11, respectively.

MIDI CC DEFAULT VALUE (only visible if source is *MIDI CC*): As a MIDI controller's current position can't be queried remotely and is thus unknown until actual data is received, this value will be used as a substitute until the first MIDI CC data is seen. A value of -1 in this field tells **KONTAKT** not to modulate the parameter at all until actual data is received.

MODULATION SHAPER: If you need more control about the relationship between modulation signals and parameter changes than what's provided by the **INTENSITY** fader, clicking on this button will open a shaper table, which allows you to create all sorts of custom shapes – from non-linear transfer curves all the way to complex tables that assign each possible input value to a different output value.



A modulation shape which changes low velocity values to higher ones.

The **ACTIVE** button in the upper left corner of this view activates the shaping of the modulation signal. When switched on, the window next to it will show a graphical representation of the table that's made up of 128 vertical bars, with each bar's height representing the actual value that will be used for modulation if the value that corresponds to this bar is received from the source module. In other words, what you see is a transfer curve, whose X axis represents the input value, and whose Y axis represents the output value.

By clicking and dragging a single bar, drawing shapes across bars, or drawing lines by right-clicking and dragging the mouse, you can quickly create your own shapes. Note that holding the Shift key while changing the height of a bar allows for finer editing, while Ctrl-clicking on bars (Cmd-click on Macs) will reset them to zero.

As non-linear curves and other deterministic shapes can't be easily drawn with any accuracy in this fashion, the MODULATION SHAPER provides an alternate editing mode, which can be accessed by clicking the SWITCH button in the lower left corner.



The curve editor allows you to create continuous, smooth modulation shapes.

In this mode, you can define your mapping using curve segments. This editor mode works not unlike the flexible envelope editor described in section 23.1.3 – you can drag the endpoints of curve segments to move them, drag the circles in the middle of a segment to change the curve shape, right-click (Ctrl-click on Macs) on an endpoint to delete it, and right-click (Ctrl-click) somewhere else to create a new segment.

INVERT button: If this button is activated, all modulation will be reversed in direction; hence, a rise in the modulation signal will result in a proportional drop in parameter value.

MODULATION INTENSITY: This fader controls how large the parameter changes caused by the modulation signal changes will be, or in other words, how far this assignment will cause the parameter to stray from its original value. As different modulation intensities can produce considerably different effects, this is probably the most important parameter of the assignment. As an example, reconsider the LFO-to-pitch assignment described in the

previous section: a natural and subtle instrument vibrato will call for a rather low intensity value, while a higher intensity will produce a sound reminiscent of a police siren.

SMOOTHING: If this value is higher than 0, any signal received from the modulation source will be smoothed. The displayed value is a time constant in milliseconds and indicates how long the smoothed signal would take to reach the new value after an instantaneous change in the modulation signal occurred. The most obvious application of this feature is a gentle smoothing of external MIDI data; as the MIDI standard imposes a resolution of only 128 steps on controller data, using it without smoothing is prone to causing audible parameter jumps. A fairly low smoothing value will get rid of these, while still preserving a sufficiently fast response to controller changes. As pitch modulation is particularly prone to audible steps, all pitch assignments will have their **SMOOTHING** parameter set to a value of 250 by default. Higher values can give useful results with LFOs, such as a “slurred” rectangle or sawtooth modulation.

MODULATION TARGET: Finally, the rightmost element displays the parameter that will be modulated. If you click on the field, a drop-down list of all parameters that can be modulated in this module will appear, and you can choose a new target.

23.Modulation Sources

Now that you know how to create assignments that connect a modulation source to a parameter, let's have a closer look at the various modulation sources that KONTAKT has to offer. As explained in the previous chapter, all modulation sources fall in one of four general categories: Envelopes for (usually) non-periodic, finely adjustable curve shapes, LFOs for periodic waveforms, Other for special modulators like step sequencers, and External for modulation signals that don't originate from one of KONTAKT's modulation modules.

23.1 Envelopes

KONTAKT offers three kinds of envelope shapes, each one with a different set of controls:

- ▶ **AHDSR:** This is KONTAKT's take on the most common envelope type out there, the ADSR envelope, which is named after its parameters (attack time, decay time, sustain level, and release time). With these four parameters, ADSR envelopes can create a surprisingly large number of different modulation shapes, which are well-suited to simulate the natural dynamic behaviors of acoustic instruments. KONTAKT's flavor of this envelope provides an additional **HOLD TIME** control, which will be described below.

- ▶ **DBD:** This is a rather simple one-shot envelope that rises or falls from zero to an adjustable breakpoint above or below, then returns to zero. It works well for simulating things that happen during the initial attack phase of sounds.
- ▶ **Flexible Envelope:** As the name suggests, this envelope doesn't force any limitations whatsoever on your modulation shape. It allows you to create almost arbitrarily complex controller curves, which span anything from milliseconds to several minutes.

23.1.1 AHDSR Envelope Controls



AHD ONLY: If this button is activated, the envelope will be reduced to its attack, hold, and decay phases (see below for a description of what these do). As this eliminates the sustain parameter, what you'll get is a simple one-shot envelope, which will always be completed no matter how long the key is being held. It is thus best suited for drum and percussion sounds.

RETRIGGER: If this button is activated, the envelope will be restarted every time KONTAKT receives a note, even if another note is still being held at the same time. If it's inactive, the envelope will keep its current position until the last note has been released, then be restarted on the next note.

CURVE: Adjusts the curve shape of the attack phase. A value of zero results in a linear attack curve, negative values make the shape more concave, and positive values make it more convex.

ATTACK: The initial time it will take the envelope to reach its maximum level after it has been triggered.

HOLD: The (fixed) time the envelope will stay at its maximum level after it has completed the attack phase and before it enters the decay phase.

DECAY: The time it will take the envelope to fall from its maximum level to the level set by the **SUSTAIN** control.

SUSTAIN: After it has completed its attack, hold, and decay phases, the envelope will stay at this level as long as the key is being held.

RELEASE: The time it will take the envelope to fall from its sustain level back to zero after the key has been released.

23.1.2 DBD Envelope Controls



RETRIGGER: If this button is activated, the envelope will be restarted every time KONTAKT receives a note, even if another note is still being held at the same time.

DECAY 1 (D1): The time it will take the envelope to rise or fall from zero to the breakpoint after it has been triggered.

BREAK (B): The level of the breakpoint. If this value is negative, the envelope will fall, then rise, and behave the other way around if it's positive.

DECAY 2 (D2): The time it will take the envelope to rise or fall back to zero after it has reached the breakpoint.

23.1.3 Flexible Envelopes

This powerful envelope type allows you to create arbitrary modulation shapes by defining up to 32 breakpoints, each at a defined level and point in time. Similar envelopes appear in a few other places of KONTAKT, for instance as ZONE ENVELOPES in the WAVE EDITOR.



When you create a new flexible envelope, you'll initially see a shape which roughly resembles a traditional ADSR envelope in its panel. Any changes to the shape of the envelope will take place within this graphical representation. Just like within the other envelope editors, the X axis represents the time, while the Y axis represents the modulation level.

You can define an envelope shape by creating or deleting breakpoints, moving them around (thereby changing their position in time and their level), and changing the shape of the curves that connect them. The initial preset is an envelope with four breakpoints; this is also the minimum number of breakpoints that have to be present in an envelope.

In order to add a breakpoint to your envelope, right-click (on a Mac, Ctrl-click) on the position where you want it to be created. Deleting breakpoints works in the same way: right-clicking (or Ctrl-clicking) an existing breakpoint will delete it, causing its neighbors (if the breakpoint wasn't the last one of the envelope) to be connected with a straight line. You can change these connections between breakpoints from straight lines to convex or concave curves by dragging the small circles in their middle up or down.

If your envelope is becoming longer than the time window that's currently being displayed in the editor, you can left-click and drag the time line horizontally to scroll, or right-click (Ctrl-click on a Mac) and drag it to zoom in and out.

You can move breakpoints around by dragging them with the mouse. The currently selected breakpoint will be indicated with a filled square icon. In addition to its graphical position in the editor, you can view its parameters as numerical values in the breakpoint status line above the editor.

MODE	#	ABS. TIME	DELTA TIME	LEVEL	SLOPE
SLD	1/3	250.00	250.00	1.00	0.13

The status bar of the flexible envelope panel displays data of your currently selected breakpoint in numerical form.

From left to right, these values tell you about the current positioning mode (explained below), the number of the currently selected breakpoint, its absolute position in time (displayed in milliseconds), its relative distance in time to the preceding breakpoint, its level, and the shape of the curve to the left of the breakpoint (with a value of 0.5 indicating a linear shape,

higher numbers indicating a convex shape, and lower numbers a concave shape).

You'll notice that when you move any point (except the last one) horizontally, all points that follow it will move along by the same amount, thereby changing the overall duration of the envelope. If you don't want this, just click on the **MODE** entry of the breakpoint status line above the envelope editor; this will toggle the breakpoint positioning mode between *SLD* (slide, which is the default and shows the described behavior) and *FIX* (fixed, which allows independent positioning without affecting other breakpoints).

In addition to the envelope shape, the editor displays three orange lines – two vertical, one horizontal – drawn in a “H” shape. The section between the vertical lines, which can be dragged to other breakpoints (except the first and last point of the envelope), marks the envelope's sustain phase. This phase affects how the envelope will behave while a note is being held. What exactly will happen during this time depends on whether there are any additional breakpoints between the two orange lines. If the sustain part spans only the curve between two breakpoints, with no other breakpoints in between, the envelope will “freeze” when it reaches the second point's level – indicated across the sustain part with the horizontal orange line – while the note is being held. In contrast, if there are any additional breakpoints between the start and end markers of the sustain phase, the whole section will be looped until the note is released, in which case the envelope immediately jumps to the section that follows the sustain phase.

The first 8 breakpoints of a flexible envelope are special in that their positions in time and their levels can be modulated via external modulation sources; to do this, open the envelope editor's **MODULATION ROUTER** and create modulation assignments in the usual way.

Now that you know how the envelope editor works, let's have a look at the two remaining buttons of the panel:

RETRIGGER: If this button is activated, the envelope will be restarted every time **KONTAKT** receives a note, even if another note is still being held at the same time.

TEMPO SYNC: When activated, a vertical grid of note values will be drawn on top of the editor, the step size of which will depend on your current zoom factor (remember you can zoom in and out horizontally by right-clicking or Ctrl-clicking and dragging your mouse on the time line). All breakpoints you move around in this mode will snap their position in time to these grid lines, allowing you to create modulation curves in sync to your host or **MASTERKONTROL** tempo. Since this will make the actual length of your envelope change with the host tempo, the breakpoint timing values that were previously displayed in milliseconds will now be displayed in note divisions.

23.2 LFOs

Low Frequency Oscillators (LFOs) generate periodic (or in some cases, random) signals, which are typically used for modulation across all kinds of synthesizers and samplers. Their name stems from the modular analogue

synthesizer behemoths of the past, where they first originated: it was meant to reflect that their typical operating frequency was the only thing that set them apart from the audio oscillators (which were mostly just being referred to as “oscillators”), since otherwise, they worked pretty much the same, and had similar controls. While audio oscillators generate signals in the audible range of 20 Hz up to 20,000 Hz, LFOs provide a much lower range. This aspect makes sense when you consider that most practical parameter modulations call for speeds that are actually humanly perceivable as changes, not as continuous sounds. Take the canonical vibrato example from the last chapter – even 20 Hz would be much too fast for a vibrato, so the actual frequency is actually far outside the useful audio range.



An LFO, outputting a sine waveform at 1 Hz.

All of KONTAKT's LFOs can generate frequencies within the range of 0.01 Hz to around 210 Hz. You'll notice that the upper part of this range actually overlaps the audio range, which opens up some rather interesting and creative modulation possibilities, but the better part of your traditional LFO assignments will likely call for frequencies between 0.01 Hz and 40 Hz.



A multi LFO, which lets you mix all other waveforms into a complex waveform.

While we're referring to "KONTAKT's LFOs" in plural form in order to reflect the fact that depending on their output waveform, they all look a little different, there's actually no need to treat them like separate modules from a user's point of view. In fact, once you've created an assignment that uses an LFO as its source, you can conveniently switch the waveform on this LFO's control panel in the MODULATION section of the RACK; the displayed set of controls will follow your selection. That's why we'll explain every control only once in the next section, with an appropriate remark if a control is specific to a waveform.

LFO Controls

WAVEFORM button: Displays the waveform of this LFO's output signal and allows you to select a different one via a drop-down menu. The available waveforms are *Sine*, *Triangle*, *Rectangle*, *Sawtooth* (falling), *Random*, and *Multi*, which is a mixture of all other waveforms.

RETRIGGER: If this button is activated, the LFO waveform will be restarted at the same position each time a note is received. If it's inactive, the LFO will run in a "freewheel" fashion, without reacting to notes.

FREQ: Adjusts the frequency of this LFO's output signal in Hz (cycles per second). Values range from 0.01 Hz (one cycle in 100 seconds) to around 210 Hz.

The LFO speed can be synchronized to your host tempo, an external MIDI clock, or your MASTERKONTROL tempo. To accomplish this, click on the displayed unit of the frequency readout. A drop-down menu will appear, allowing you to choose from a list of note values. After you've selected a value, the LFO is in sync mode, and the frequency control will adjust

and display how many notes of this value will make up the duration of one cycle. For instance, if you select *Whole* and dial in a value of 1.0, an entire LFO cycle will span exactly one bar of a 4/4 measure. To return to unsynchronized mode, just select *Default* from this drop-down menu.

FADE IN: If this value is greater than zero, the LFO will not start the waveform right away when a note is received, but rather smoothly ramp it up over a time of up to 5 seconds. This works great on human-like vibratos. Like the frequency control, this parameter can be synchronized to a song tempo in the way described above.

START PHASE: Adjusts the position within a cycle at which the LFO will start its waveform when it's triggered. The value is displayed in degrees, with 0° being the start of the waveform, 180° the mid-point of the cycle, and 360° the start of the next cycle. Setting this parameter only makes sense when the RETRIGGER button is activated.

PULSEW. (Pulse width, *Rectangle* waveform only): The pulse width adjusts the duty cycle of the waveform, which determines the ratio between the high and low parts of the cycle. A pulse width of 50% results in a perfect square wave.

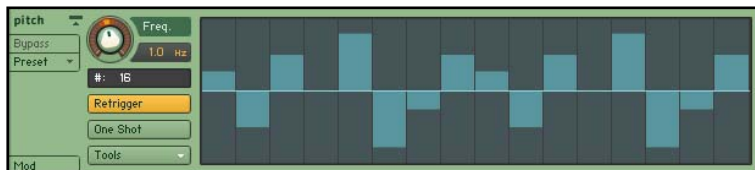
WAVEFORM MIXER (*Multi* waveform only): The *Multi* waveform is special in that it's the result of an addition of other waveforms. Which waveforms will appear in this mixture, and at which respective amounts, can be adjusted with an additional set of controls which appears below the main row of knobs when you switch to the *Multi* waveform. Note that these mix controls are bipolar and thus allow you to reverse the polarity of source waveforms. At a value of 0.0, the respective waveform will be absent from the mixture.

NORMALIZE LEVELS (*Multi* waveform only): If this button is activated, and the sum of all component waveforms in the current mixture would exceed the level of a simple waveform at its peaks, the LFO will reduce its level accordingly.

23.3 Other Modulators

This category includes all internal modulation sources that won't fit into one of the other categories.

23.3.1 32-Step Modulator



The **STEP MODULATOR** works similarly to a classic step sequencer in that it allows you to freely define a row of up to 32 values, which will then be “played back” at a constant speed. You can define these bipolar values by drawing bars that originate from the middle line with your mouse; the higher a bar, the further the modulated parameter will stray from its original value at this point in the row. To draw a linear change across multiple bars, right-click (Ctrl-click on Macs) and drag the mouse in your editor; this will draw a line which will be reproduced with bars when you release the

mouse button. The speed at which the STEP MODULATOR will move from bar to bar can be synchronized to your host or MASTERKONTROL tempo. Here's a run-down of the controls:

FREQ: Adjusts the “playback speed” of the STEP MODULATOR. Values range from 0.01 Hz (an entire cycle through all bars will take 100 seconds) to around 210 Hz. You can synchronize the speed to your host or MASTERKONTROL tempo by clicking on the displayed unit, then choosing a note value from the drop-down menu and adjusting the speed knob to a number of these note values that will be spanned by one cycle.

(number of steps): Click on this field, then drag your mouse up or down to change the number of steps in your row. As the modulator will immediately wrap to the first row after it has reached the end, a power of two in this field (like 8, 16 or 32) will ensure that the STEP MODULATOR keeps aligned with a binary song meter during playback.

RETRIGGER: If this button is activated, the STEP MODULATOR will restart its sequence at the first bar each time a note is received. If it's inactive, the step modulator will run in a “freewheel” mode without reacting to notes.

ONE SHOT: If this button is activated, the STEP MODULATOR will play the row once, then stop. Otherwise, it will loop the row indefinitely.

TOOLS: Opens a drop-down menu with two utility functions: *Reset* will set all step amplitudes to 0, *Snap 1/12* will restrict all edits to a grid of 24 steps (12 in each direction), which, in combination with a pitch assignment with full modulation intensity, allows you to create note sequences within a chromatic scale.

23.3.2 Envelope Follower



The ENVELOPE FOLLOWER continually analyzes the amplitude of the currently played sample and generates a modulation signal from it, thereby replicating the dynamic envelope of the audio signal for your own use. In other words, whenever your audio signal gets louder, the modulation signal will rise accordingly; when it gets quieter, the modulation signal will fall. These are the available parameters:

ATTACK: Adjusts the ENVELOPE FOLLOWER's response time to rising levels. Larger values will "smooth out" the attack phases that correspond to increasing audio levels. Very short values can cause distortions, as the ENVELOPE FOLLOWER will begin to track each cycle of the audio waveform.

DECAY: Adjusts the ENVELOPE FOLLOWER's response time to falling levels. Larger values will "smooth out" the decay phases that correspond to decreasing audio levels. Very short values can cause distortions, as the ENVELOPE FOLLOWER will begin to track each cycle of the audio waveform.

GAIN: Adjusts the ENVELOPE FOLLOWER's sensitivity to the audio signal. Larger values result in a higher envelope amplitude.

ADAPT: Sets a baseline transient response time for the ENVELOPE FOLLOWER.

23.3.3 Glide



The GLIDE module acts as a source for a special modulation signal that's needed to create a portamento effect. This effect is known from monophonic synthesizers and adds a sliding transition between the pitches of two consecutive notes when they are played in a legato fashion. To create a portamento, assign the GLIDE module to the pitch of your source module, and set the corresponding modulation intensity to the maximum value. Using this module in other ways rarely makes sense. Also note that while using this facility with polyphonic Instruments certainly works, the effect is usually associated with monophonic Instruments. The module provides two controls:

TIME/SPEED: Selects one of two different glide modes. If *Time* is selected, all transitions happen in the same time, regardless of the interval between the notes; in *Speed* mode, wide-spaced intervals will result in longer transitions than close-spaced intervals, as the glide speed will be kept constant.

SPEED: Adjusts the speed of the portamento. You can synchronize this parameter to your host or MASTERKONTROL tempo by clicking on the displayed unit, then selecting a note value from the drop-down menu and adjusting a numerator for this value with the speed knob.

23.4 External Sources



An external modulation assignment which maps MIDI CC #1 (modulation wheel, usually) to the volume parameter of an Amplifier Module.

This category encompasses modulation sources whose signals don't originate from one of KONTAKT's source modules; most of the sources found in this category reference incoming MIDI data of any sort, allowing you to use data like pitch bend, aftertouch, or MIDI controllers for parameter modulation. Let's start with these:

- *Pitch Bend*: This kind of MIDI data is usually sent by pitch bend wheels or levers on master keyboards. Unlike normal MIDI controllers, pitch bend data is transmitted in a rather fine resolution of 14 bit, which provides 16.384 value steps. If both your controller and the parameter that you'd like to modulate can work with this resolution, KONTAKT will use it to its full extent.
- *Poly Aftertouch*: This controller, also referred to as key pressure, is sent by a rather small number of MIDI keyboards and allows you to receive aftertouch pressure data for individual keys. Note that in order to create an Instrument that responds to polyphonic aftertouch, you'll need to spread your voices across multiple Groups that are cycled in a round-robin fashion, so that the pressure of each key can be processed within its own group.

- ▶ *Mono Aftertouch*: This controller, which is also being referred to as channel pressure, provides a single value for the aftertouch pressure that's applied to held keys. It's sent by a wide range of master keyboards.
- ▶ *MIDI CC*: The MIDI specification provides 128 continuous controllers (0-127) for general use. These are supported by almost all MIDI controller devices and used for transmitting the status of controllers like modulation wheels, sustain and volume pedals, or general purpose fader banks. Some controller numbers are assigned to standard devices (#1 = modulation wheel, #7 = volume, #11 = expression, #64 = sustain pedal, to name a few), but KONTAKT doesn't take that into account – you can use all controller numbers between 0 and 121 as modulation sources.
- ▶ *Key Position*: This source provides access to the MIDI note number of a pressed key. It can be used to change parameters, like a filter cutoff, in response to the pitch of the played note in order to make keyboard tracking possible.
- ▶ *Velocity*: This is a value between 0-127 that indicates how hard (technically, fast) a key has been hit. It's transmitted by nearly all master keyboards and is frequently being assigned to parameters like volume, brightness, or (inversely) the length of the attack phase.
- ▶ *Release Velocity*: This value is sent by a very small number of master keyboards. It indicates how slow or fast a key is being released and is useful for changing the length of a sound's release phase accordingly.

- *RLS Trig. Count*: This value is generated for Groups that are being triggered on release and indicates the time between the trigger and the release signal. Read the description of release triggers in chapter 17 for an in-depth explanation of this facility.

In addition to external MIDI data, the *External* category also includes 3 special sources of scalar values that won't change over time:

- *Constant* will simply add or subtract the value of the modulation intensity fader to the modulated parameter. It can be used to easily “bend” parameter values beyond the range limits of their controls.
- *Random Unipolar* will generate a random value between 0 and 1 for each received note.
- *Random Bipolar* will generate a random value between -1 and 1 for each received note.

24.Keyboard Shortcuts

On OS X computers, use the Command key instead of the Control key. The left and right mouse buttons are abbreviated with “LMB” and “RMB”, respectively.

24.1 Global Keys

Ctrl + N	New Instrument
Ctrl + O	Open Instrument
Ctrl + S	Save
Shift + Ctrl + S	Save As
Ctrl + C	Copy
Ctrl + V	Paste
Ctrl + X	Cut
Ctrl + A	Select All
Cmd + Q (Mac), Alt + F4 (PC)	Quit
Delete / Backspace	Delete
F1	Browser
F2	Output Section
F3	Keyboard
F4	MasterControl
F5	Group Editor
F6	Mapping Editor
F7	Wave Editor
F8	Script Editor
F9 (PC), Ctrl + I	Info Pane

24.2 Browser

Alphanumeric Keys	Jump to file by name
Cursor Up	Select previous file
Cursor Down	Select next file

24.3 Wave Editor

Alt + LMB (Click and Drag)	Rubber band zooming
Lock all slices	Alt + Click on “lock” tool
Delete all slices	Alt + Click on “-” tool

24.4 Instrument Edit Mode

Alphanumeric Keys	Play Instrument
Ctrl + Z	Undo
Ctrl + Y	Redo
^ or ~ (key to the left of “1”)	Modulation Quick-Jump
ESC	Exit Instrument Edit mode

24.5 Group Editor










Ctrl + D	Duplicate Group
Ctrl + C	Copy Group
Ctrl + V	Paste Group
Ctrl + X	Cut Group


24.6 Mapping Editor












Ctrl + LMB	Cycle through overlapping Zones (inside Zones); Set Zone crossfades (on Zone edges)
Shift + LMB	Multiple selection; expand or collapse all Groups (in list view)
Shift + Cursor Keys	Add adjacent Zones to selection
Ctrl + Cursor Left / Right	Move key range of selected Zone(s) by one note
Shift + Ctrl + Cursor Left / Right	Adjust upper key limit of selected Zone(s) by one note
Ctrl + Cursor Up / Down	Move velocity range of selected Zone(s) by two steps
Shift + Ctrl + Cursor Up / Down	Adjust upper velocity limit of selected Zone(s) by two steps
Shift + LMB (Click and Drag)	Rubber band selection w/o moving Zones







Alt + LMB (Click and Drag)	Rubber band zooming
+ (Number Pad)	Zoom in
- (Number Pad)	Zoom out
Ctrl + T	Auto-map selected Zone(s)
Ctrl + E	Auto-spread Zone ranges
Ctrl + R	Resolve key range overlaps
Shift + Ctrl + R	Resolve velocity range overlaps
Ctrl + D	Duplicate Zone



25.List of Supported File Formats











Browser	Instrument	HARDWARE FORMATS	File Extension
		AKAI	
		S-1000	CD-Rom
		S-3000 / Mesa	CD-ROM; .s3p; .sp; no extension (Mac)
		S-5000 / S-6000 Program	.akp
		S-5000 / S-6000 Multi	.akm
		Z-4 / Z-8 Program	.akp
		MPC Sound	.snd
		MPC Program	.pgm














		EMU	
		EOS IV	CD-ROM
		EIII	CD-ROM
		Esi	.esi
		Emax II	
		KURZWEIL	
		K2000 / K2VX	.krz
		K2500	.k25
		K2600	.k26
		YAMAHA	
		A3000	
		A4000	
		A5000	







		ROLAND	
		S-50 / S-550	.out
		S-700 / S770	.out
		ENSONIQ	
		EPS	.efe
		ASR-10	.efa
		ASR-X	
		PULSAR	
		Pulsar STS Program	.p
		Pulsar STS Sample	.s
		Pulsar STS-5000	.sts











Browser	Instrument	SOFTWARE FORMATS	File Extension
		GIGASTUDIO	
		Gigastudio 1-2.5	.gig
		Gigastudio 3	.gig
		EXS24	
		EXS24 mkl	.exs
		EXS24 mkII	.exs
		HALION	
		Halion 1 / 2 program	.fxp
		REASON NN-XT	
		NN-XT Instruments	.sxt












		RECYCLE	
		REX 1	.rex

		REX 2	.rx2
		MACH 5	
		Mach 5 Bank	.m5b
		Mach 5 Preset	.m5p
		Mach 5 Performance	.m5m
		SOUNDFONT 2	
		Soundfont 2	.sf2
		BATTERY	
		Battery 1	.kit
		Battery 2	.kt2

		Battery 3 Kits	.kt3
		Battery 3 Cells	.cl3
		REAKTOR	
		Reaktor	.map
		LM4	
		LM4 mk1	.txt
		LM4 mk2	.fxp
		BITHEADS	
		DS-1 Unity	.uds
		SAMPLECELL	
		SampleCell	.ins; no extension / CD-ROM
		BEATCREATOR	
		BeatCreator	.zgr

		DR-008	
		DR-008 Kits	.zgr
		RGC:AUDIO SFZ	
		sfz sample definition files	.sfz
		VSAMPLER	
		VSampler 1 – 2.5	.vsb

Browser	Instrument	AUDIOFILE FORMATS	File Extension
		WAV	
		mono / stereo	.wav
		multichannel	.wav
		AIFF	
		mono / stereo	.aiff / .aif
		multichannel	.aiff / .aif
		APPLE LOOPS	
		Apple Loop	.aiff
		ACID	
		Acidized	.wav

Browser	Instrument	DISC FORMATS	File Extension
		Akai S1000 Disc	proprietary
		Akai S3000 Disc	proprietary
		E-MU Disc	proprietary
		Roland Disc	proprietary
		Ensoniq Disc	proprietary
		Kurzweil Disc	proprietary
		Mac HFS Disc (PC)	proprietary

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